

Final Report - Phase II

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## CIVIL DEFENSE IN METROPOLITAN AMERICA ORGANIZATION OF ZONAL CIVIL DEFENSE SYSTEMS FOR LARGE POPULATED AREAS

Contract No. DAHC20-68-C-0107  
OCD Work Unit R-79-7



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THE ORGANIZATION OF ZONAL CIVIL DEFENSE SYSTEMS  
FOR LARGE POPULATED AREAS

By

Howard N. Mantel  
David D. McNally

Prepared for

Office of Civil Defense  
Office of the Secretary of the Army  
Washington, D. C. 20310

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## P R E F A C E

The Institute of Public Administration since 1967 has been studying the organization of civil defense (that is, its nuclear threat components) in large population centers drawing on its background in administration, urban analysis, and metropolitanization. An earlier report submitted in 1969 to the U. S. Office of Civil Defense outlined several themes for making civil defense building and operating systems relevant to the requirements of the major metropolitan areas. IPA then was asked to continue its analysis, with particular reference to a zonal (or large area) concept of civil defense.

We seek in this report, which responds to the second phase assignment, to help define a potential organizational strategy for the zonal concept. The report is not a definitive design for implementing the zonal concept; rather, it probes the issue, describes and analyzes the universe within which a zonal system of civil defense inescapably would evolve, and applies a case study methodology-- which is more an exercise in exposition than in organizational engineering.

The report should be treated as "food for thought" and it may well be that ideas proposed or hypotheses stated can be deflated promptly. But it is only through a candid and tentative methodological style by persons who make no pretense of expertise on civil defense technical requirements that the value and form of the zonal concept can be tested.

Part One of the report summarizes in global fashion the general purposes, problems, and perceptions of civil defense. This lays the way, so to speak, for Part Two which looks at the zonal concept and how it might be

Part One

GENERAL OBSERVATIONS

Constraints Inherent in the  
Nature of the Nuclear Threat

Organizational strategies for civil defense, the subject of this report, must be considered in light of the purpose and environment in which civil defense operates. We note first its stated goal: civil defense is designed "to preserve life and speed recovery in the event of an attack against the United States."<sup>1</sup> It deals with a threat that may never materialize. In peacetime, the average citizen perceives nuclear war as remote; accordingly, he takes little interest in civil defense. Public concern rises when international tensions intensify-- as during the 1962 Cuban missile crisis. But it wanes quickly as the emergency passes. Today, citizens tend to be surprised when informed that in fact there is a national civil defense program.

The enormity and impact of a nuclear catastrophe defies comprehension and encourages the attitude that preparations, no matter how extensive, are in vain. Some critics contend that the government should focus on nuclear disarmament or controls rather than on civil defense. Others declare that they would prefer to perish in the holocaust rather than live to see its aftermath. Still another widespread view is that civil defense efforts are useless, short of prohibitively costly dollar blast shelter programs. Regardless of the validity of the arguments, it is the present passive public attitude with which the Office of Civil Defense must deal.

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1. U. S. Department of the Army, Civil Defense: 1960-67, A Bibliographic Survey (DA Pamphlet 500-3), Washington, Government Printing Office, 1967.

The Office of Civil Defense's passion for anonymity doubtless reflects the view that renewal of congressional appropriations would not be aided by wide popular attention to civil defense.

The number of alternative contingencies to which civil defense strategies must be geared vastly complicates planning. It is impossible, for example, to predict with certainty the scale, targets, accuracy of bomb delivery, and timing of an attack, although such variables vitally affect vulnerability. Past experience offers few lessons. The only use of nuclear weapons on populated areas occurred more than 25 years ago. Even the most devastating earthquakes, riots, and other natural and civil disasters are not comparable to a major nuclear attack.

All of this constrains the capacity to set priorities and to organize planning and operational activities. The conditions under which civil defense plans would be implemented cannot be simulated realistically. The most recent nationwide "test" of civil defense preparedness occurred when the Emergency Broadcast System was triggered accidentally in February 1971. Many commercial radio and television stations ignored the warning, or else waited to check its authenticity before interrupting normal broadcast schedules to disseminate emergency information. The incident suggested the fallibility of emergency warning mechanisms. In the event of another warning, media outlets would hesitate to air it pending verification, recalling the earlier false alarm; the delay could affect critically the successful, that is, the timely activation of emergency procedures. To be sure, an international preattack crisis buildup would tend to alert people to the possibility of attack. On the other hand, the crisis would have to

demonstrate the likelihood of a shooting war between the United States and a major power since we have become immune to repeated crises involving world peace.

A final point is worth noting relative to the environment of civil defense: unlike the armed forces, civil defense agencies must interact daily with local governmental units and the public. Civil defense personnel themselves control few matériel resources and, even in an emergency, they rarely exercise command authority. Their ability to coordinate the activities of police and other crisis actors depends, therefore, largely on willingness to cooperate. The bargaining power of civil defense agencies, including the Office of Civil Defense, is not strong, especially in normal circumstances. Other priorities command the priorities of those in civilian life who control and allocate resources. Policy-makers, facing a plethora of minor crises and urgent service demands generally devote little attention and funds to civil defense; many state and local governments, in fact, dismiss civil defense as properly a federal government responsibility. Within the federal establishment it does not command sustaining interest at the highest policy levels.

In short, civil defense starts off with a bag of strikes against it, the most important one being "who cares?"

#### Strategic and Organizational Constraints

The obstacles to effective civil defense that are inherent in the nature of the threat and its political environment are compounded by problems relating to the national civil defense posture and its organizational infrastructure. Until the early 1960's, the federal government

endorsed tactical evacuation of densely populated areas in a war emergency. Evacuation exercises were mounted on a small scale, particularly involving key federal officials based in Washington, D. C. A dispersal policy also was pursued, under which federal agencies were encouraged to locate new facilities outside the core of the nation's capital; and the interstate and national defense highway system was initiated, in part to facilitate the movement of men and matériel in war-related crises.

With the development of sophisticated missile delivery systems tactical warning time of an attack was cut. This lessened the feasibility of tactical evacuation. Bomb shelters initially received considerable publicity, especially during the Cuban crisis, Berlin blockade, and other emergencies. But popular interest in civil defense preparedness faded thereafter. The government substituted a policy of in-place protection of the population in fallout shelters.

Today, many persons believe that the yellow and black shelter signs are remnants of an obsolete effort. The title of a television special several years ago sums up a widespread attitude: "Whatever Happened to Civil Defense?"

Government officials responsible for civil defense themselves do not agree on an optimal strategy. Within the Office of Civil Defense, one school of thought holds that the use of community shelters would increase the number of casualties, because much of the metropolitan population would be directed to fallout shelters in the very central cities that are prone to direct attack (a good case in point is the Los Angeles area).

A widely discussed issue is whether or not civil defense should be concerned strictly with war-related crises. Proponents argue that the Office of Civil Defense congressional mandate<sup>1</sup> clearly is restricted to war emergencies; widening its role lessens attention paid the problems unique to the nuclear contingency. The contrary position is that a civil defense role in all kinds of emergencies provides useful training exercises for a nuclear crisis, and that in any event it is a necessary quid pro quo to win public and governmental support for war-related preparedness.

The second position seems to be winning. OCD restrictions on the use of personnel and equipment it subsidizes have been relaxed significantly. The present OCD director stresses the peacetime utility of his agency, and encourages civil defense personnel to assist in any emergency operation. Nevertheless, controversy over the proper mission of civil defense and of the Office of Civil Defense in particular continues.

At the national level civil defense is isolated from other domestic (and especially urban) federal programs and agencies. This fact derives from the war-only OCD mission and from the location of OCD in the Department of the Army. The Office of Emergency Preparedness (OEP), which deals with peacetime disasters, is better known and generally more popular locally than the Office of Civil Defense, given its broad mandate, disaster funds, and its location in the Executive Office of the President. OEP's stature rose precipitously when the President in 1971 announced his

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1. The Federal Civil Defense Act of 1950, as amended.

wage-price freeze policy and assigned a major implementing role to OEP. The possibility of merging OCD and OEP-- thereby consolidating nuclear and non-nuclear preparedness-- has been studied extensively.

Of immediate concern is the fact that relations between OCD and OEP personnel characteristically are distant despite the interaction of their missions. Interagency planning and cooperation is the exception rather than the rule. For example, in the January 1971 earthquake in Los Angeles, the OEP Region VII director assembled a disaster team of officials from among relevant federal agencies. The OCD regional office offered to assist but to its chagrin it was not invited to serve on the team or to furnish personnel or equipment.

Numerous studies for the Office of Civil Defense-- including IPA's earlier report<sup>1</sup>-- record the fact that a nuclear attack on a major city would affect many political jurisdictions in that region. This fact suggests that preparations must be made on an interlocal, areawide basis, but OCD does little to reduce fragmentation or reduce its debilitating impacts. The principal civil defense aid program (Personnel and Administration) applies to all local civil defense agencies (and to many persons not employed directly by civil defense units), regardless of jurisdiction, location, or size. Many states require all political subdivisions to maintain civil defense agencies exacerbating fragmentation. Other states generally permit any county or municipality to establish a civil defense instrumentality. (An alternative position would be for states to prohibit localities under

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1. Institute of Public Administration, Civil Defense in Metropolitan Areas, 1969.

a certain population from having civil defense agencies of their own. Concurrently, financial incentives would be offered for creation of agencies responsible for entire metropolitan areas.)

Financial support by OCD for emergency operating centers (EOC's) similarly are awarded on a first-come, first-serve basis with little consideration of areal externalities. The average metropolitan area boasts a number of county and municipal EOC's subsidized by the Office of Civil Defense and many regional units of state civil defense agencies maintain their own ECC's. Though the latter usually are the only facilities with metropolitan areawide jurisdiction, frequently they are less well-equipped than one or more of the county or municipal EOC's in the area. The duplication of facilities may be justified and even desirable in dealing with natural or civil disaster operations. But it poses a major impediment to areawide capacities.

Personnel matters further constrain civil defense capabilities. Meager funding, the low status and visibility of civil defense, public attitude toward nuclear war, and the routine nature of many day-to-day civil defense activities-- especially the marking and stocking of fallout shelters-- inhibit recruitment and retention of quality personnel. The result is that many civil defense positions are filled by medium-level persons, part time officeholders (that is, persons whose principal responsibilities are as local police or fire officials, and the like), volunteers, or semi-retired individuals (often former military officers). In many states and localities civil defense agencies have been among the last to be brought under civil service merit systems. To compound the

problem of staffing, great reliance had been placed on volunteer labor, particularly by civil defense agencies in small cities and rural communities, but this practice may be diminishing as the difficulty of using volunteers effectively becomes recognized.

The Future of Civil Defense

Most of the problems described above have grown more acute in the past decade. The winding down of the Vietnam war (and a corresponding increase in noninterventionist sentiment in this country among all shades of political thinking), and the evolving rapprochement with China and the U.S.S.R., as witnessed by the forthcoming trips of the President to these nations, suggest that the present trend will continue. State and local civil defense agencies, attuned to these developments and the press of "routine" emergencies, more and more emphasize their peacetime activities. Clearly, OCD is moving in the same direction despite any fundamental change in its legislative mandate.

The obvious proposals for upgrading civil defense capabilities within a neutral or hostile environment are to secure cooperation for nuclear preparedness with sizable sums of federal money, and to make civil defense "relevant" by tying it to natural and civil emergencies (the quid pro quo approach). Several comments on this strategy may be noted. First, very substantial federal incentives must be offered to spur interest in civil defense on the part of local governments in major population centers, and yet it is not clear that the most generous federal aid program will stimulate substantial cooperation by local governments. The governments that are most vulnerable to attack are those that face the numerous and

competing claims on their limited resources (all the facets of "the urban crisis"), and they are most likely also to adopt an "it's hopeless" attitude towards protection from nuclear attack.

Second, removal of "strings" from OCD funds and equipment may indeed, as the critics contend, further erode local concern with strictly war-related emergency preparedness. Thus, the Office of Civil Defense could give funds to states, counties, and municipalities, with the directive simply that the resources be used for emergency activities, leaving the precise allocation of funds to the recipient agency. However, in most areas such a program would become a hidden subsidy for local fire, police, hospital and other emergency services. If no conditions are attached to the grant, why not simply channel the money directly through OEP, the Law Enforcement Assistance Administration of the Department of Justice, Department of Housing and Urban Development, or some other agency?

Of OCD activities, the community shelter program has perhaps the least peacetime application. Surplus equipment, OCD-subsidized personnel, and emergency communications systems can be used in a variety of emergencies, but fallout shelters-- except in areas prone to tornadoes-- rarely are utilized. Too often, community shelter planning becomes a numbers game. One civil defense director told IPA that he knows exactly how many shelter spaces his county contains and could mark and stock all of them easily in a single year. Yet he extends the process over many years, so that his annual reports to the Office of Civil Defense can show "progress" in the shelter program each year. Again, shelter supplies become outdated, but they are not replaced (many local civil defense officials complain

they cannot obtain fresh supplies from OCD). Many shelters are inaccessible or are filled with merchandise, debris, and the like.

To its credit, OCD recently directed state and local civil defense government agencies to update their emergency plans at least every other year, or risk the loss of Personnel and Administration funds. This regulation should result in the upgrading of many plans, although some governments may decide to abandon their civil defense programs-- if permitted under state law-- rather than to comply with it. The most serious failing of the plans is that many are drafted in a routine manner and are not geared to the actual requirements of a nuclear emergency operation as it would apply in the area involved. Furthermore, the officials who must use the plans often are not familiar with them, and they may not have time to become so in a sudden nuclear crisis.

Overall, a serious question exists whether the United States is significantly better prepared to meet a nuclear emergency as a result of the sums spent for civil defense (\$1.7 billion since 1950). After visiting numerous state and local civil defense agencies around the country, the authors are persuaded that most civil defense professionals-- no matter how dedicated to their jobs-- would be ill equipped to deal with such a catastrophe. These officials increasingly are concerned with natural and civil disasters, in which they sometimes play a useful role. In the area of nuclear preparedness, their universe of concern generally is limited to the requirements of the next round of program papers submitted to the Office of Civil Defense.

One conclusion is that, at a minimum, the federal government should limit its civil defense assistance to governments in the most probable target areas (this thesis is developed in Part Two of this report). While theoretically any part of the United States might be subjected to fallout effects from a nuclear detonation elsewhere, the potential "return" on federal civil defense investments in rural areas or cities far from likely target zones does not warrant further expenditure (what states and localities decide to finance, of course, is up to them).

A more fundamental change in existing civil defense priorities would be to eliminate the national community shelter, Personnel and Administration, and surplus equipment programs. OCD should focus instead on limited national contingency planning, on development of warning systems, and on training personnel in skills essential to nuclear preparedness (radiological monitoring, etc.).

This report does not explore the issue of whether all efforts at civil defense should be abandoned-- it is almost impossible to define or prov. a "correct" answer to this question. The severest critic is sobered by the question, "Could we not get into a nuclear war?" Certainly, though, there is little evidence that the bulk of the effort today has been justified, even if the basic case for a civil defense program can be accepted. A fundamental review of program and premises is terribly needed and should be performed at the highest policy levels-- most usefully by the Congress.

Part Two

## THE ZONAL CONCEPT

The AssignmentFocus on Nuclear Threat

The Institute of Public Administration was asked to devise an organizational strategy for nuclear attack survival and recovery in the nation's largest population centers. A report in 1969 suggested the parameters of the problem and basic principles to be employed in responding to the metropolitan or regional nature of civil defense.<sup>1</sup> Emphasis in the second phase of the IPA work is on first, the enemy and especially nuclear threat components of civil defense, as distinguished from civil and natural disasters components<sup>2</sup> and second, the transmunicipal (or multijurisdictional) impact of that threat. These two points are countered by popular views (1) which stress "ordinary" civil defense emergencies (relatively speaking) like riots and earthquakes almost to the exclusion of concern over potential enemy attacks; and (2) which emphasize the independence and prerogatives of individual local governments and their decision-makers. A pervasive issue for both categories of civil defense, but especially the nuclear, is how to cope with an areawide problem in the absence of areawide response mechanisms or strategies. The Committee for Economic Development has noted:

1. Institute of Public Administration, Civil Defense in Metropolitan Areas, 1969.
2. For the purposes of this report we would tend to group internal acts of sabotage, whether by enemy agents or not, in the second category, except to the extent that a nuclear device is detonated or threatened. The difference may be one of scale more so than the nature of the trauma and, in this respect, nuclear detonations, however delivered, are unique.

The large-scale breakout of residences, commercial activities, and manufacturing from the bounds of the central city has produced a number of major problems. Each part of the metropolitan area is faced with problems peculiar to itself. This diversity may strengthen the feeling of mutual antagonism between city and suburb. The area as a whole, however, faces problems which cannot be dealt with adequately on a piecemeal basis. Yet, so far, few areas have developed institutions which can adequately deal with these problems, and the prevailing antagonism between city and suburb inhibits the development of such institutions.<sup>1</sup>

Civil defense in this sense is similar to such functional areas of metropolitan frustration as transportation and pollution. IPA's assignment for both phases is to analyze the organization for planning and operating civil defense systems and specifically, to help devise a practical system of civil defense planning for large population centers.

#### The Zonal Concept

The second phase assignment derives from current attention by the research directorate of the Office of Civil Defense to what is termed the "zonal concept." A description of the concept follows:

The Zonal Concept was developed to provide a broad basis for activities involving both the survival and recovery aspects of a wide-spread disaster. It emphasizes first, general organizational preparedness at several levels and their integration of activities which would provide the basis for recovery actions within a given zone - without regard to any specific program of survival actions. Then, it considers the relationships of survival action alternatives to the recovery process and from these, derives the necessary preparational programs which would, under a reasonable range of contingencies, lead to effective zonal recovery via a correlated survival program.

Every place, has an emergency organizational unit with two kinds of missions; one related to activities involving its own area, the other concerned with its contributions to the zone

1. Committee for Economic Development, Guiding Metropolitan Growth, New York, 1960.

with which it is associated. Relative emphasis will vary greatly from place to place depending *inter alia*, on local resources and probability of risk.

Similarly, zonal organizations are responsible for both self-help and mutual-aid between zones.

For convenience, it is assumed that there are three kinds of geographic units involved in the process of survival and recovery from a disaster; nodes (cities), domains (counties) and zones (groups of contiguous counties). Further, for disasters involving nuclear attack, it assumed that the emergency, survival needs generated by a stricken node will have to be principally met by activities emanating from outside this node, but within its zone. Also, recovery actions must be initiated, and largely completed from non-stricken nodes.<sup>1</sup>

In designing a zonal strategy, IPA has not been asked to determine whether community shelters, evacuation, or other specific civil defense postures are appropriate or manageable. While some implicit judgments of this kind are inescapable, the instant task is how to organize zonal civil defense systems and the underlying legal and financial bases. The immediate basis for the assignment is the research directorate's inquiry as to the feasibility and desirability of the zonal concept. The focus for IPA's part of this research inquiry is on planning and postattack recovery, the scale of zonal systems, leadership designations, and the requisite processes in securing approval and implementation of operating plans.

This report does not purport to define and amplify all of the matters raised or implied by the zonal concept; it does attempt to focus on practical problems in upgrading local civil defense arrangements in large areas, which today are characterized by extensive fragmentation and resource

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1. Neal FitzSimons, The Zonal Concept, Office of Civil Defense, 1969.

diffusion. In some instances we suggest steps to implement the zonal concept; in other instances we question or contradict its assumptions or assertions. Overall, it is clear that if the concept is to be adopted as part of the nation's civil defense posture, much more must be done on theoretical, demonstration, and operational planes. This report at best points the way for some of these future steps.

Underlying Assumptions

Working hypotheses of our efforts, reflecting and expanding the findings of the IPA Phase I Study, include the following:

1. An overabundance of individual local civil defense agencies inhibits capability to respond to nuclear dangers. This typically is the case in large population centers. Fragmentation of the nation's civil defense apparatus has hindered progress considerably by downgrading the areal, zonal, and transmunicipal nature of such contingencies, with stated exceptions.<sup>1</sup>

2. Efforts to overcome fragmentation and to reduce its debilitating impact on civil defense have been only marginally productive despite the use of such arrangements as mutual aid agreements, which to many is a panacea but in fact is not.

3. Most state, county and municipal civil defense agencies are poorly positioned to aid political executives and legislators in developing workable emergency response systems. This situation if it is to be remedied

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1. State civil defense area offices, as in California, help overcome the provincial perspectives of local actors.

has significant implications for staffing, matériel resources, contingency plans, organization, and interagency relationships.

4. In the event of a nuclear attack, present emergency operations plans and standby systems may be only marginally useful. The investment of federal and local funds to develop these plans and systems is unlikely to overcome the near universal skepticism toward civil defense.<sup>1</sup> As a result in a crunch plans may not be found, or may be ignored, or may prove not to aid in dealing with the crisis at hand. Raw use of power and individual self-survival instincts appear likely to prevail in a major nuclear crisis more so than ordered directives from the formal command structures.

5. Civil defense represents the most extreme kind of planning for uncertainty; the assumptions underlying a zonal system or any other civil defense posture may prove unrealistic no matter how adroitly developed and applied. It is virtually impossible to predict how people will react in a nuclear catastrophe or to the imminence of an attack. This greatly complicates the task, during times of relative calmness, of organizing civil defense systems, especially for recovery from a bombing and for dealing with postattack life styles.

6. Given the triple constraints of apathy, prerogative, and priority, it will be no mean task to win local acceptance of regional or zonal preattack planning and resource allocation arrangements. Local political actors are likely to show only marginal interest in nuclear aspects of civil defense, principally because there are few immediate returns. Why worry

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1. This skepticism is manifested by the attitudes toward civil defense by government officials as well as by the general public. Of course, opinion varies widely.

about a remote threat when the agenda of nonnuclear emergencies-- and the "routine" traumas of urban life-- are heavy and pressing.

7. Even where there is basic acceptance of the need for nuclear-oriented civil defense, a priori determinations that a central city will certainly be targeted in the event of a nuclear attack and hence should not be the focal point of a postattack command structure or the repository for matériel aid from OCD, may lead to the strong opposition from central city officials (we do not argue the validity of these points, but note them as illustrations of the kind of situations that may arise in centralizing civil defense decision-making under the zonal concept).

8. To be effective in a nuclear crisis and postattack periods, leaders must (a) be known, (b) have the appearance (even more so than the fact) of full legal authority, (c) control communications and vast resource and personnel networks, and (d) be able to enforce unpopular commands largely without debate. The capacity of large populated areas, with their unique kinds of political and socioeconomic hegemony, to achieve such qualities under the stated conditions of a nuclear crisis, is at best a formidable task.

9. Formal constitutional capacity and implementing legal authority are indispensable elements of any viable building system but may become progressively less important at the time of an attack or during the early postattack and recovery periods.

10. Despite the congressional directive to the Office of Civil Defense to deal with nuclear emergencies, local and state emergency and civil defense agencies must be compatible with nonnuclear emergency building

and operating systems. In fact most are involved with the latter directly, and their nuclear role is something of an afterthought or a chore. Thus, despite the focus of the IPA study on nuclear-oriented civil defense, the interrelationships with the nonnuclear inescapably are present, and this has negative and positive influences. On the positive side, various economies of scale are feasible and socially desirable. On the negative side, however, there is a constant danger that the need for compatibility between nuclear and other emergency systems will result in the downgrading of the nuclear focus. This is true also at all levels of government, including the federal.

11. Civil defense preparations for major population centers must be geared at a minimum to entire metropolitan areas if they are to operate at reasonable levels of scale and universe of resource and vulnerability. A correlative assumption is that the minimum precept of the metropolitan area would be aided by still a wider base, that is, the zone. In any event local capabilities should be developed as integral components of the zonal civil defense system or other multijurisdictional systems.

#### An Analytical Model

It is feasible to devise several models of a zonal system. In our judgment a better approach is to develop a single conceptual model as a tool for analysis, indicating alternatives within a basic framework. If these hypotheses essentially are correct (many, obviously, are subject to debate and refinement), then a variety of considerations, some economic, some geographic, some political, must be brought into account in devising a game plan for the implementation of the zonal concept. We conclude first

that prima facie there is merit to the zonal concept because it will help overcome the difficulties arising from fragmentation and the problems of scale, and second that for many of the same reasons it is not predictable whether the concept can be made to work. The best we can do at this juncture is to outline some of the elements of a zonal model. In that process many questions get posed or answered (more the former than the latter, we suspect). We do not believe that the ultimate answer to the question of feasibility can be answered from this first round of model-building, but we also conclude that by the same token the proposed zonal system is not beyond the ball park of reality or reason.

The model in sum suggests a series of major requirements that must be designed and implemented in moving from concept to action. The essential ingredients are:

First, the creation and capacity to function of a central planning and decisional apparatus that raises civil defense in large populated areas from the municipal or county levels (the nodes and domains) to the zonal level. This apparatus is almost totally absent today on the American scene (the statement is not limited really to civil defense but is especially true there).

Second, the financing of such an apparatus as well as of the civil defense network within the zonal system. Today, there is great dissipation of civil defense resources from the federal government to individual local jurisdictions (via the state more or less as a fiscal conduit). The need is for an allocation system (which ultimately goes beyond OCD resources)

which proceeds from a zonal perspective. Again, such a perspective does not now exist.

Third, the jurisdictional base for zonal civil defense. This involves the essential metropolitan dilemma of our local government system: the gap between local units of administration (cities, towns, villages, counties) and state and national ones for dealing with problems that are bigger than the first and smaller than the second. The job is to devise in the initial instances a zonal planning infrastructure, but in the final analysis (that is, after a nuclear attack if such a nightmare ever becomes a fact) it means a zonal government. Needless to say, the apparatus for almost all of the stages of evolution, including the relatively simple task of planning and building systems on a zonal scale, involves new approaches and difficult ones.

Scope

The zonal system model is designed to develop and sustain an organizational strategy in major American population centers for:

1. Planning a system of nuclear survival and recovery;
2. Securing acceptance of the plan in the public and private sectors;
3. Establishing the institutional, legal, and procedural framework in which preattack operations will be mounted;
4. Assuring the viability of arrangements for effective command structures in the transattack and immediate and later postattack periods;
5. Indicating the economic and political (i.e., governmental) machinery for postattack resumption of the communities involved; and,

6. Determining and allocating the costs for the system.

The term "Zonal Emergency Nuclear Network" (or ZENN) is suggested as the shorthand equivalent of the model. A ZENN will be developed for each major population center; we suggest that 20-40 ZENN's be defined. This does not mean that the United States will be divided into that number of zones, for a sizable portion of the nation-- chiefly isolated portions-- will not lie within any given zone.

Initiation and Policy Direction

We do not believe that a nationally imposed or mandated system will succeed, nor do we believe that a zonal civil defense plan prepared by the federal government will be accepted unless it has been negotiated with local and state actors. In short, despite the likely reluctance of local governments either to initiate a ZENN system or to participate in one, they must be involved if the system is to succeed. The first job is to initiate the negotiating and participating system, and this can well be done by the federal government. To this end, the Office of Civil Defense should initiate negotiations with the appropriate state governor or governors, the principal county and local political executives, and with civil defense officials to organize the ZENN system for each zone. The immediate aim of these negotiations is to establish an intergovernmental policy board to begin the job of shifting from a local to a zonal perspective and to direct ZENN once it is started. Each ZENN board should comprise representatives of the states, counties, cities, with at least an advisory role on the part of the Office of Civil Defense and the Office of Emergency Preparedness (through their regional offices),

Even assuming that the federal leadership in beginning the process is manifested at the highest levels (e.g., a written appeal by the Secretary of Defense or even the President to the major political executives of the potential participants), and assuming a full financial incentive by the federal government as recommended below, we recognize that state and local officials may be apathetic or hostile towards the ZENN concept. OCD, therefore, should mount a superior effort to persuade localities and states that the zone concept for nuclear survival and recovery is sound and necessary; a critical point of persuasion would be (1) the nonnuclear multiplier impacts of a viable nuclear civil defense system, (2) the "carrot" of the federal financial incentives, and (3) the "stick" of federally mandated standards and requirements or, more realistically, the withdrawal of federal aid for civil defense.

The model presumes that federal financial support for ZENN activities will help overcome local resistance to participate and that it is possible to demonstrate that the zonal approach is in the interests of the individual local government. In this context the ZENN board is critical for safeguarding the interests of the individual governments represented. We beg for the moment any effort to "prove" this point or to suggest practical alternatives if locals are not persuaded to participate.

In the final analysis, however, the rise and fall of the zonal concept or any basic improvement in civil defense capabilities in large populated areas may be determined on the willingness of locals to participate, and the meaning of that participation. Clearly, presence at a meeting

and routine acquiescence in zonal civil defense planning activities will not suffice. The system must be sufficient to withstand the serious objections of a local jurisdiction which feels ignored or adversely affected by the planning and allocation decisions of the ZENN system. Using an earlier illustration, it is unlikely that a ZENN system can work without the active participation of the zone's central cities. But if the system's planning requirements have determined that the central cities are poor repositories of responsibility and resources (on the theory that they will be the focal points of enemy attacks and hence will not be able to sustain the economic lifespans of the zone), then the central cities in fact may not wish to participate. From this reasoning, one can conclude that the participatory-negotiating posture of the ZENN board will facilitate reasonable compromise among the local actors with respect to role and allocations, but this does not assure equal interest by all parts of the zone. Hence, the issue of feasibility is put to a test from the beginning.

#### ZENN Board Composition

To function effectively, the ZENN board should be kept deliberately small, with not more than 15 members, if at all feasible.<sup>1</sup> The following composition is recommended:

1. A representative of each city (node) in the zone with 100,000 or more residents. (It is assumed-- and reflected in our previous illustrations-- that a city with relatively high densities will be a potential

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1. Cf. the formula for the Los Angeles County and Cities Civil Defense and Disaster Commission, discussed infra, Part Three.

direct target, although one can debate the minimum population size which justifies this conclusion.)

2. The administrative officer or chairman of the board of supervisors of the principal county or counties (domains) which are likely to be targeted in a nuclear attack.

3. An official of each of the counties immediately adjacent to the target county or counties. These counties, it is assumed, will have the principal job of providing basic economic and political thrusts in the event the principal target counties (or cities within them) in fact are hit. Hence, they should be represented.

4. One representative for each group of two to five remaining and adjacent counties in the zone, depending upon the number of counties involved. The objective is to insure representation of the zone overall, while keeping the total board small. It may be necessary to use a similar arrangement to assure representation directly of municipalities of less than 100,000 persons each.

5. A state official named by the governor. In the case of interstate zones, the governor of each state will designate a representative.

6. A federal government official named by the director of the Office of Civil Defense or the Secretary of Defense. To insure uniformity, it is advisable that the federal member on each zone board be selected from within the same agency, that is within OCD or OEP. (State and federal representatives on the board will be nonvoting members.)

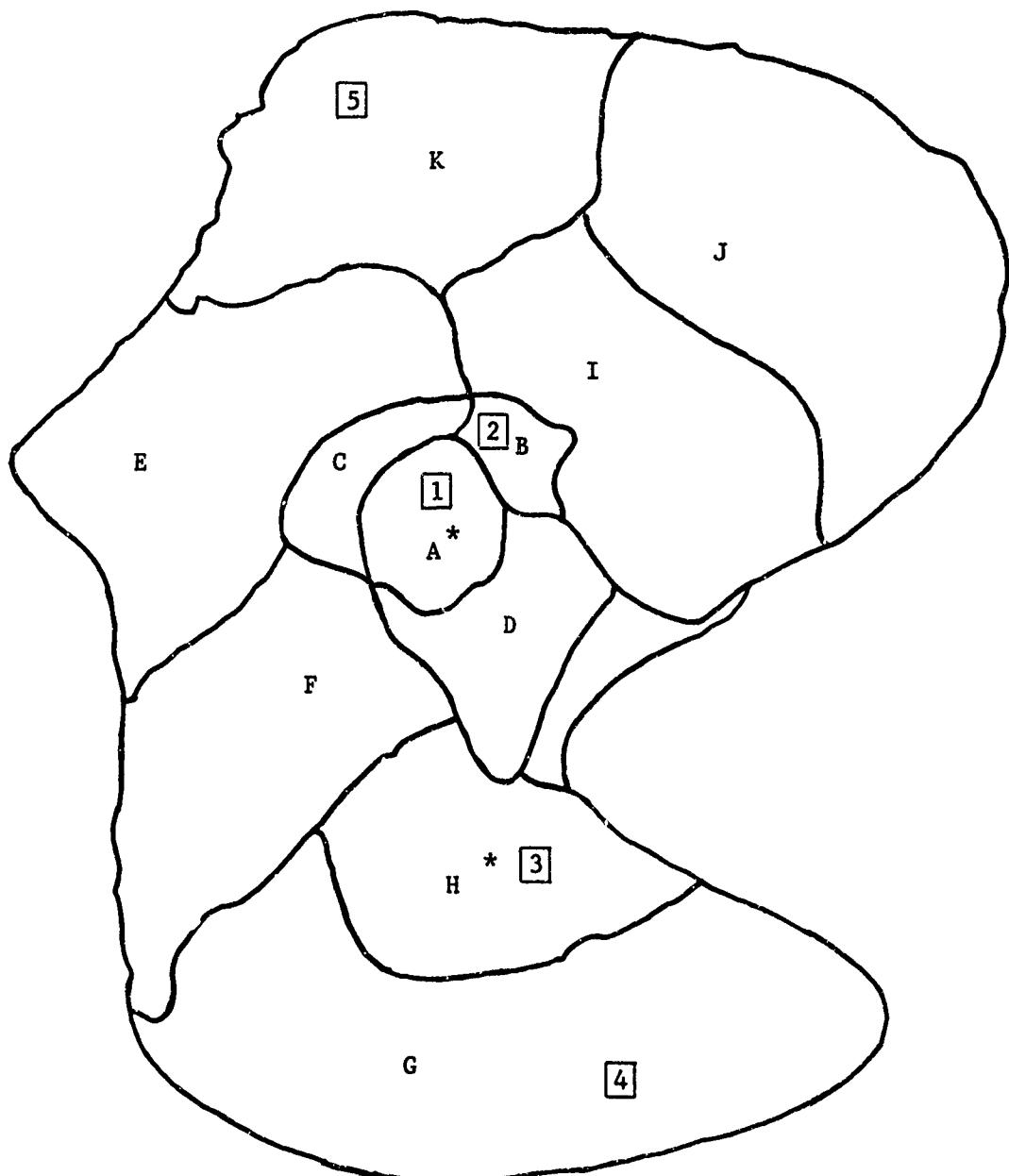
To illustrate a ZENN board's composition, we have outlined a hypothetical zone (see Map 1). The principal targets are Cities 1 and 3 which are located, respectively, within Counties A and H. The ZENN board would be composed as follows:

1. Cities 1, 2, 3, 4, and 5 each would designate its own ZENN board representative. (Smaller cities and towns are not shown on the map.)	5
2. Counties A and H, the target counties (noted by *) would each designate a representative.	2
3. Counties B and G are the immediately adjacent counties (to the prime target counties) which are likely to become the principal resource and political jurisdiction in the event that the targets are hit. Hence, each one would designate a member.	2
4. Counties C, D, E, and F as a group and Counties I, J, and K as a group each would choose a representative to the ZENN board.	2
Total Voting Membership	11
State and Federal Representatives (Nonvoting)	2
Total	13

The ZENN board will be the forum through which local governments negotiate with each other and with the state and federal governments to devise mutually acceptable civil defense arrangements. The board is a vehicle also for informing localities about the purpose of nuclear preparedness activities. It should supply a stable leadership base for nuclear-oriented

Map 1  
(Illustrative)

GEOGRAPHICAL BASIS FOR MEMBERSHIP OF LOCAL GOVERNMENTS ON ZENN BOARD



Numbers - Cities With 100,000 or More Population

Letters - Counties

\* - Principal Targets

civil defense systems, which generally has been lacking under today's fragmented arrangements.

ZENN Technical Director

The ZENN board will hire a full time technical director. He will direct the ZENN planning system, help augment preattack building activities, and serve as liaison among the various public and private agencies involved. The ZENN technical director will report to the ZENN board, although his salary will be paid by the Office of Civil Defense. We conceive of his role more that of a technician than a civil defense "czar" for the zone, but the extent of his powers will be determined by (1) the board and (2) the evolving style and "clout" of ZENN itself. Restated, we would not rule out completely that in the event of an attack, he would not be the principal commanding official. But more likely, in the initial stages of ZENN, he will have a staff role, and the planning system of ZENN, not the creation of the position per se, will determine leadership roles during crises and, equally important, in developing the plan and implementing it.

Technical Advisory Panel

To help the board make policy and review local civil defense activities, a technical advisory panel (TAP) should be created. It should comprise technicians from local governments, public utilities, military installations, regional planning bodies, and other instrumentalities in the zone. Each ZENN TAP will help the ZENN board select and supervise the team which conducts the substantive zone defense planning.

Several lessons applicable to zonal civil defense systems can be drawn from the four-county community shelter plan conducted recently in the

San Francisco region by the Association of Bay Area Governments (ABAG), a regional planning entity. In a January 1971 evaluation report,<sup>1</sup> the ABAG community shelter plan coordinator made a number of observations and recommendations of which those most relevant to the present project are summarized below.

1. The success of the endeavor stemmed largely from: (a) recruitment of a full time coordinator knowledgeable about community shelter planning; (b) administration of the project by a regional governmental organization; (c) active participation by county and municipal personnel from start to finish; and (d) continuing monitoring by state and federal civil defense officials.

2. The most serious deficiencies in the project were: (a) interruptions caused by the negotiation separately of each stage of the study; (b) assignment of too much responsibility to the technical consultant; and (c) insufficient time for the preparation, distribution, and review of the reports required at the end of each stage.

3. The policy or steering committee was chaired by an elected official from the study area, with the full time coordinator serving as secretary to the committee.

4. Virtually no cooperation was received from area military installations, whose staff are described as having "a general abhorrence to permit the public to go to military facilities, even in cases where

1. Robert A. Morrow, Evaluation Report - Four-County Bay Area CSP Program, Association of Bay Area Governments, Berkeley, January 1971.

such allocation would appear to in no way interfere with military operations in time of emergency."<sup>1</sup>

5. Local civil defense staffs were hesitant to accept responsibility for ongoing distribution of shelter and disaster information, apparently because of uncertainty about adequate federal support, and because of fear of adverse local reaction.

The ABAG report suggests the difficulty but importance of securing the involvement of all local actors in regional civil defense activities and of assuring that this commitment does not end with completion of the initial, formal planning effort. ABAG stresses the need to "sell" community shelter planning to the public and to local officials (even civil defense personnel). The community shelter program immediately affects the public at large, as each person ideally is familiar with the shelter system. The ZENN, on the other hand, is geared to the allocation of resources on a macro, or regional scale, and it touches the individual citizen less directly. Hence, ZENN must be justified chiefly to resource managers-- particularly state and local governments, but also public utilities, major industries, and the like-- rather than to the public directly (this would change in a crisis situation, of course).

#### Financing Zonal Civil Defense Systems

Two questions should be considered: first, what kind of incentive financing is needed to initiate the ZENN board and its early planning work? Second, what kinds of financing and allocation systems should evolve over time, once a zonal civil defense network is a reality?

1. Ibid., p. 12.

1. Financing ZENN. The federal government should sponsor and bear most of the internal costs of organizing and sustaining ZENN. This neither makes the Office of Civil Defense the prime control instrumentality of ZENN or of the civil defense system in the zone, nor does the sponsorship reduce the constitutional authority of the states, but it is regarded as the most practical means of getting the job started. While it is theoretically possible for a ZENN-type arrangement to be developed by local action, the history of civil defense in metropolitan areas negates such initiative. Given all of the reasons why local civil defense officials and municipal political executives are interested in "ordinary" threats of disaster and not nuclear ones, the likelihood is slim that they will act on their own to deal with a nuclear-oriented civil defense planning system at the zonal level. It is our view that OCD should be prepared to provide the incentive of 100 percent financing of the early-on ZENN posture. We also suspect that this can be done without additional congressional appropriations for reasons discussed below.

2. Allocation of Resources. State and local contributions to the funding of civil defense and disaster activities vary widely from one political jurisdiction to the next, but two trends are evident: appropriations are declining and local government decision-makers increasingly are concerned with other than war-related emergencies. Civil defense officials themselves downplay their nuclear mission and stress their utility in peacetime disasters, as a means to secure political and financial support.

These developments have major implications for civil defense: (1) costly new civil defense programs are not likely to be politically feasible; and (2) even modest expansion of civil defense activities must be federally funded, if their introduction in every state is to be assured. Given the reluctance of the United States Congress to enlarge civil defense appropriations, it follows that the most palatable new program or strategy is the one which can be financed through a redirection of existing federal civil defense funds, rather than through the infusion of new money.

We would caution those who sponsor the civil defense zonal concept and the upgrading of civil defense resources and planning efforts for large population centers against expectations of major new appropriations. The present low key image of civil defense is premised, in part at least, on not "making waves" for larger congressional appropriations, lest the entire program be killed. Likewise, proposals for major new civil defense postures, especially those with hefty price tags, also can sound the death knell of civil defense overall, if not handled adroitly. Reallocation of existing appropriations, rather than additional funds, seems to be a highly politic part of the zonal concept.

A basic premise (or test of the feasibility) of the ZENN concept is that civil defense investments should be concentrated in the nation's major urban areas, those most likely to be targeted in a large-scale attack on population or economic centers.<sup>1</sup> The monies saved by refusing grants for personnel and administration and emergency operating centers to low risk

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1. Or even on military installations (many of which are located in or near metropolitan areas).

jurisdictions could be allocated instead to emergency preparedness activities in the critical high potential target zones discussed in this report.

We propose also a fundamental change in the allocation and use of federal civil defense funds within areas which are part of a ZENN system. Under present arrangements, funds are allocated to each local government with a civil defense agency, regardless of size. The state acts as the fiscal conduit. Funds are allocated for specific categorical use. To replace this arrangement, the ZENN board should control the allocation of all federal OCD funds and matériel flowing into its jurisdiction.

The net result of these proposed changes in national priorities for civil defense would mean: first, that the investment costs in instituting the ZENN board, technical advisory panel, ZENN director and staff, and out-of-pocket costs for the planning effort would come largely from funds not now allocated to the area encompassed by the zone; second, that more funds would be made available for the building systems of civil defense within the zone; and third, that present restrictions on the use of funds largely would be removed.

A special word about the third suggestion. The ZENN zonal system has two basic thrusts: a zonal, rather than a fragmented, approach to civil defense in large population centers; and a determination by the zone's political and civil defense leaders (including state and federal civil defense representatives) as to the best means of dealing with the threat of nuclear attack for that zone. The latter implies that national priorities for such matters as community shelters would be susceptible of zonal modification. We recognize that OCD (or the Congress) may not accept this

premise, but we suggest that a zonal policy would have little substance if all it did was to follow national OCD precepts without consideration of the locally known or locally perceived needs.

Zone Application

The civil defense zonal concept focuses on metropolitan areas or core cities likely to suffer a direct and conscious attack; it is logical perhaps to select the 25 most likely and important target areas, and develop ZENN systems for them, rather than to deal with all potential targets. To avoid diluting civil defense resources for such activities, we would suggest that relatively low risk areas should be eliminated from the ZENN scenario. That is, the ZENN system should concentrate on the most likely targets and not try to cover all risk areas.

This decision, if accepted, may well be a source of considerable friction, however; clearly it poses sensitive political issues. Governors, mayors of medium-sized cities and county executives may object that their areas are ignored in the allocation of OCD resources to initiate ZENN. There is an analogy to the scramble for funds under the initial HUD Model Cities Program.

One can consider the justification for civil defense activities generally in the less populated areas of the United States. It can be argued that the enemy's plans never will be known, and he could opt, however unlikely, to target a small rural town or a medium-sized city. This supports the present posture of at least minimal civil defense precautions for the entire American population. However, given the dual factors of (1) scarcity of resources and (2) some capacity to predict the likely

targets (large population centers, key industrial and military areas, etc.), the existing civil defense policy dissipates resources. The net result is that no part of the population is fully protected (this point, of course, is debatable).

We favor concentration of civil defense resources in the more likely targeted areas of the United States. In any event, we would limit ZENN system efforts to such areas. If this posture is developed, the Office of Civil Defense should be prepared to deal with such questions as the following:

How will local officials in the Saginaw, Michigan area react if they find OCD sponsoring a ZENN operation for the Detroit region but not for theirs? How can OCD resist the temptation to sponsor ZENN systems in localities where local officials express interest or demand such sponsorship, whether or not the areas are highly vulnerable to attack? Alternatively, should OCD (or could it politically) ignore likely target areas whose governmental leaders are indifferent or hostile to civil defense? (For example, only four of the nine counties in the San Francisco Bay area agreed to participate in the community shelter study conducted there between 1968 and 1970.)

#### Zone Boundary

The zone concept assumes that (1) core cities within principal population centers will be targeted in a nuclear attack, and (2) the affected cities will be almost totally destroyed. Of course this assumption like any other could prove faulty. It follows that an emergency operation zone is perceived as a group of contiguous counties surrounding the high

risk target. The region surrounding these cities must contain sufficient resources to undertake trans and postattack action to host central city evacuees, to provide the bulk of short-term aid to the stricken core, and to contain the life support systems to enable postattack life styles to evolve.

FitzSimons notes:

The zone is the basic unit for both preparational and operational activities. It is composed of a group of counties, preferably intra-state, which are diverse in character (rural cf. urban) but geographically related (e.g. a common major trading center). The normal peacetime distribution of people, resources and institutions is assumed to be so dispersed within a zone that even in the event of a nuclear attack, sufficient assets would have a great enough chance for undamaged survival to enable the zone to have a good chance of quickly becoming largely self-sustaining shortly after attack; and soon thereafter being able to contribute to filling state and national needs.<sup>1</sup>

OCD's research directorate has leaned toward adoption of the 173 areas of the Office of Business Economics, U. S. Department of Commerce. These are clusters of counties ranging from three to 40, with an average of 18 counties. The OBE areas encompass about 20,000 square miles and 1.5 million inhabitants. Zones vary from 50 to 100 miles in width and up to 400 miles in length.<sup>2</sup>

OBE areas were developed largely as self-contained marketing centers. The civilian defense appeal in adapting them for the zone concept stems from their resource self-sufficiency. This may prove to be illusory, however. The destruction of a principal wholesale food

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1. FitzSimons, op. cit.  
2. Ibid., p. 3.

distribution center, say Omaha, may require reliance on another such center, which may not be in the same OBE area. The viability of OBE areas as the basis for ZENN geographical jurisdictions may be impracticable too, since OBE areas do not always coincide with established political or government boundaries,<sup>1</sup> yet the necessity for dealing with such boundaries may be critical for defining a politically and economically viable civil defense system.

We would conclude that the ZENN model should not pre-impose its full geographical jurisdiction at the outset. The drawing of a precise boundary should be one element of the ZENN planning activities. While this complicates such matters as the ZENN board selection, it is not fatal. Certainly, the heart of the ZENN jurisdiction (center cities, suburban and adjacent exurban counties surrounding them) is fairly predictable.

In sum, then, OBE areas represent a convenient starting point for determining the ultimate size and shape of the ZENN jurisdiction, but they should be used as a guide, not a fixed requirement. The ZENN board itself should determine the precise criteria for its geographical jurisdiction; items to be considered are economic self-sufficiency, resource location, transportation patterns, political cohesiveness, and the like. Estimates of the scale of a potential nuclear attack vary widely.

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1. Many OBE areas are interstate. They rarely correspond to the jurisdiction of regional councils of governments, or metropolitan service districts or public authorities, or to the sectors into which most states are divided for civil defense, police, comprehensive health planning, or other purposes.

ZENN Functions

The basic function of the ZENN board will be to design a zonal emergency operating structure and procedures. The relative value of alternative civil defense programs will be evaluated by the board within that context. The board will develop the zonal emergency command structure and see that appropriate arrangements are made in advance among area governments as to who is in charge and under what circumstances. A critical set of decisions will pertain to the choice of the alternate centers of economic and governmental recovery, in the event that the primary center of the zone is targeted. (The ZENN board for the Detroit zone might vote to make the mayor of Lansing regional commander if Detroit, for instance, is destroyed, or if the mayor of Detroit is unable to get to a command center.)

Area political jurisdictions would be asked to sign interlocal agreements confirming the crisis command pattern and the emergency duties of the respective governments, public utilities, and other critical agencies. Precise definitions of extraterritorial legal powers, including the arrest powers of police, will be made. This arrangement builds on, but strengthens, existing emergency plan concepts and documents. The ZENN board will approve or reject local government applications for personnel and administration reimbursements, emergency operating center construction grants, and the like. Its approval role will be substantially greater than the present role of the state government. More broadly, the ZENN board will decide whether OCD assistance will be devoted to community shelter planning, EOC's, communications facilities or other priorities, and it will determine

the relative investments in competing programs, as well as recipients. Thus, a zonal decisional apparatus, not the federal OCD, will determine the use of funds for civil defense.

FitzSimons notes:

The Zonal Concept encourages the re-orientation of 'Civil Defense' away from the present program which is highly focussed on shelters and emergency operations in large cities to one which gives increased emphasis to mobilizing the resources of an entire zone and gives smaller cities and towns a greater role in both survival and recovery activities. In doing so it provides less vulnerable organizational network which would also be in a better position to handle peacetime disasters as well as nuclear attack.

The case for a regional decision-making entity derives from the proposition that civil defense ultimately rests on local resources and commitment, and that these can be mobilized by a locally based representative instrumentality more expertly than by the federal and state governments. The national government in any case cannot compel localities to undertake specified civil defense programs, at least in peacetime. Local preparedness activities initiated under state mandates are likely to be conducted in a half-hearted, routine manner that offers little assurance of substantial payoffs in a nuclear crisis.

#### Jurisdictional Base for Zonal Civil Defense

##### Time/Activity Phases

Civil defense activities may be divided into four time/activity phases and the choice of a jurisdictional base should take into account the various (and possibly conflicting) requirements of each of these. They are:

(1) planning; (2) preattack building activities, including simulation and other test exercises, updating of emergency plans and procedures, and the like; (3) crisis operations; and (4) postattack recovery.

Evolving Agency Requirements

One can define without much difficulty an institutional base for the ZENN board and activities sponsored by it. For technical reasons (and in recognition of the proposed federal financial sponsorship or initiation of the ZENN system), ZENN activities could be lodged within the Office of Civil Defense. Contracts for technical services and logistical support, including location of office space and the like, would be handled through the regional offices of OCD.

A hard set of problems, however, arises from the nature of the civil defense zonal network that will be established under the ZENN board's direction. FitzSimons notes aptly:

Implicit in the Zonal Concept is the assumption that survival and recovery activities are so closely integrated that a single executive authority should be responsible for both.

What is entailed is the gradual transfer of command structures from local or "normal" governmental operations to the zonal command network as the crisis moves from remote to urgent possibility and then to the actual moment of attack. We assume that to harness the resources (people, communications, equipment, resources, loyalties) of the entire zone for the benefit of the overall populations and economies within it there must be a central, recognized and powerful, i.e., effective, command and control system. This implies a sound and locally accepted jurisdictional base.

Our conclusion is that whatever organizational base meets the jurisdictional requirements of the ZENN board and its initial planning and negotiating activities should be capable also of being the pivotal agency for crisis-oriented building and operating and for postattack recovery activities. In a sense, then, and for the long run we are really talking about a new governmental structure for an attacked population center, even though this hopefully never will occur. We do not believe that it is possible to discuss one type of jurisdictional and organizational infrastructure for the zonal planning system and a totally different infrastructure for operating systems. The two systems must be linked if planning is to be a part of the building system, not a theoretician's exercise.

#### Organizational Alternatives

The IPA Phase I report reviewed a dozen organizational alternatives for civil defense planning and operations. Most of the geographical areas discussed, however, were considerably smaller than the zones presently under consideration and the focus was on a particular civil defense posture being evaluated by the OCD research directorate at that time.

Here we consider the choice of an organizational framework compatible both with the technical planning aspects of the zonal system-- under the sponsorship of the ZENN board, and with operational requirements. The organizational alternatives include: (1) the central city, (2) the county, (3) a joint cities-county, cities-counties, cities, or counties organization, (4) a special district or authority, (5) a nonprofit corporation, (6) a regional planning commission or council of governments, (7) the state,

using area offices where appropriate, (8) an interstate compact organization, and (9) the federal government. A summary of the alternatives follows.

1. Central City. Major population centers typically are dominated by one large city, whose extensive technical resources suggest it as a possible base for zonal planning activities. The larger question is whether a central city could be the jurisdictional base for ZENN activities overall, and the implications of this for zonal building and operating civil defense systems.

Few legal problems arise in permitting a central city to undertake technical planning involving areas beyond its normal jurisdiction, assuming that city taxpayers are not footing the bill. (The activities almost certainly would be determined to constitute a public purpose in the event of a lawsuit over the municipality's legal capacity.) Many cities currently provide emergency services to suburban communities, generally on a contract or mutual aid basis.<sup>1</sup> And a number of municipal civil defense directors serve also as heads of joint city-county or cities-county civil defense agencies.

The factors mentioned above with respect to ZENN planning activities might be applied to operating responsibilities as well. State emergency laws could be revised to grant extraterritorial powers to the central city, which would serve as the governor's agent in its zone. Thus, all four time/activity phases could be assigned to the central city.

1. Detroit provides fire services to suburban communities when the local resources are insufficient in an emergency. During the 1967 Detroit civil disorders, the reverse occurred: suburban counties loaned fire equipment and personnel.

On the negative side, the dominance of the largest city often engenders antagonism on the part of outlying cities and towns, which strains interlocal relations and inhibits cooperation. The core city lacks legal authority to compel recalcitrant communities to contribute to the planning process (but this may be an endemic problem in any event). In addition, big city mayors face a plethora of vexing problems, and most assign very low priority to civil defense. They may be loathe to undertake zonal emergency planning or to sponsor the ZENN system even if assured of outside financing. The most difficult obstacle, however, is that assuming an attack, the central city would be damaged to the extent that it probably could not effectively exercise zonal powers.

2. County. As the base for zonal emergency planning and operations, a county generally offers greater geographic scope than municipalities-- exceptions are the jurisdictions which have merged city and county: New York, San Francisco, Jacksonville, and Nashville. Some states allow transfers of authority among localities. Thus, each county and municipality in a zone might shift local civil defense responsibilities to a designated county (or city). Counties generally are more familiar with the local socioeconomic and political environment than are state and federal governments, and they may be more acceptable areawide as primary agents for zone defense than a central city.

Disadvantages of a key county government role are: (a) most counties have extremely limited government capabilities and resources, and little experience in providing urban services, (b) counties in major urban areas generally are overshadowed by their dominant cities, and (c)

every zone encompasses more than one county. Where strong county governments do exist, as in Los Angeles or Dade (Florida) Counties, they might make the optimal instrumentalities for zone civil defense; but few county governments today meet this criterion.

3. Interlocal Organizations. Two-thirds of the states authorize interlocal cooperative arrangements; though the enabling laws vary with regard to the powers which may be exercised and the units of government that may participate. Using this approach, all municipalities and counties in a given zone, if permitted under existing or potential state laws, could channel their civil defense resources through a joint instrumentality created for that purpose (or an existing designated entity).

Mounting a joint planning effort (to cite the easiest situation) is attractive in that it encourages but does not force the participation of all local governments. The average zone contains scores, if not hundreds, of local political units, many of which may decline to enter into or participate actively in an areawide organization. The efforts needed to secure the cooperation of each government may outweigh the benefits that accrue. The joint instrumentality can be authorized to exercise the legal powers of the participating governments for routine matters (planning, etc.), but it cannot by itself take on extraordinary powers. This would have to be authorized by constitutional or statutory provision.

4. Special District or Authority. These typically are single or limited function public corporations created to overcome local financial, bureaucratic, geographic and other constraints on general purpose governments. The bulk of the more than 5,400 special districts in metropolitan

areas deal with fire protection, sewage disposal, port development, water supply, or housing and urban renewal; nationally, school districts are the most prevalent type but their gross numbers are declining as school districts are consolidated.

The utility of a special district for civil defense purposes lies in the fact that it can be tailored to the boundaries of a civil defense zone, even if interstate, and that it can focus entirely on emergency service matters. If civil defense is added on as "just another responsibility" of an existing district or authority, it may be shunted aside in favor of more popular or immediate priorities. The fact that there is outside funding for the civil defense effort does not automatically overcome these constraints.

More broadly, the drawbacks of special districts typically are that their independence and narrow function can lead to isolation from other government services, and their assumption of municipal and county civil defense duties can further reduce local government and citizen interest in this activity. Nor is it clear that the local initiative necessary to create a civil defense special district in a zone would be forthcoming.

5. Nonprofit Corporation. An alternative to the special district or authority is a specially created nonprofit corporation. As a private entity, however, a corporation cannot exercise general government powers. Its functions would be limited to planning, providing services on a contract basis, and serving as a clearinghouse of information on emergency preparedness activities.

The principal advantage of this approach is speed. In every state, nonprofit corporations can be created by the routine filing of papers. Occasionally, approvals are required, but these again tend to be pro forma. Thus, in New York State (to take a more complicated example), approval of a Justice of the State Supreme Court, State Attorney General, and possibly the State Education Department is required, but this can usually be secured as a matter of course. In most instances the act of incorporation can be done in a week or two. Thus, the arrangement may have appeal as a short run device to resolve the jurisdictional problems of a ZENN board and its capacity to receive and disburse funds, contract for services, and the like. But it cannot be used for more active building, operating or postattack operations involving governmental power.

6. Regional Councils of Government. Regional councils of government (COG's) and regional planning commissions are formed to overcome the constraints of local government fragmentation in dealing with problems of metropolitan scale, such as air and water pollution, transportation, and police communications. Most states authorize such organizations, which can be created by interlocal agreement or by way of nonprofit corporate arrangements (as in New York).

Approximately 500 regional planning commissions, and more than 135 COG's, presently exist. The number has grown enormously since federal assistance became available five years ago. Planning grants under §701 of the Housing Act of 1954, as amended, are a major source of income. Many COG's also have obtained special grants for transportation, data

system, emergency communications, and other planning purposes. In addition, COG's are authorized by the federal government to review local government plans and grant applications under the Demonstration Cities and Metropolitan Development Act of 1966 and other programs.

The utility of these instrumentalities for civil defense zone planning and operating purposes is limited by several factors. First, regional groups typically restrict their operations and membership to the immediate area, which is far smaller than a civil defense zone. Thus, the Atlanta Council of Local Governments serves a six-county area, while the OBE area encompasses 49 counties. The Detroit civil defense zone might contain 10 counties (the OBE area), but only six of these are members of the Southeast Michigan Council of Governments.

Second, few COG's count every local government in their region as a member. For example, only one-third of the localities in the area served by the Metropolitan Washington (D. C.) COG belong to that organization.

Third, major metropolitan areas often house more than one regional entity, which inhibits coordination. The private Regional Plan Association, the Tri-State Regional Planning Commission, and the Metropolitan Regional Council (the area's COG) all operate in the New York region.

Fourth, perhaps the most salient criticism of regional bodies as civil defense agents is that they lack the legal powers of general purpose governments. Membership strictly is voluntary, and the organization cannot compel area jurisdictions, even its members, to cooperate in its endeavors or abide by its decisions. Nevertheless, if empowered by the Office of

Civil Defense to review local civil defense plans and distribute (or withhold) civil defense funds and equipment, regional COG's would enjoy considerable leverage over governments in the zone. Since COG's are not governments, localities generally do not view them as potential rivals to the extent they do other local governments or state or federal agencies. Nevertheless, COG's usually are headed by prominent government officials from the area, such as the mayor of a major city, and hence they enjoy considerable political visibility and stature.

More than a dozen COG's-- notably the Association of Bay Area Governments in the San Francisco area-- already are involved in civil defense planning activities. Others have indicated a willingness to undertake OCD assignments, although the interest in most instances stems more from financial considerations than from any inherent interest in civil defense. Generous federal funding would be needed, as many COG's view civil defense activities as means to expand and upgrade their staff capabilities and operating budgets. IPA's Phase I report suggested that three-fourths federal funding of COG civil defense-related activities would be the minimum acceptable arrangement. In fact, full CCD support, perhaps with fee added above costs, likely would be necessary to attract the participation of many COG's.

While regional councils lack the legal authority and the resources to undertake actual emergency operations throughout a zone, they offer significant advantages as the vehicles of intergovernmental planning for emergencies: an areawide perspective, optimal allocation of resources and elimination of duplication in local staff and facilities, and development

of a full time qualified staff at the zone level. A regional council, unlike a state or federal agency, can accomplish these goals without appearing to impose plans and procedures unilaterally from outside the region; hence, as noted, there is greater potential for local acceptance of the programs and emergency plans developed by the representative regional organization.

7. State Area Civil Defense Organizations. Most state civil defense agencies operate through multicounty district offices, which coordinate and review local emergency plans, activities, and applications for state and federal assistance. In a nuclear crisis, the state area director can be designated the governor's agent in charge of all emergency operations in his jurisdiction. State area offices offer several advantages as the basic unit for zone civil defense. First, they are already in the civil defense business on a full time basis, and hence are familiar with and presumably dedicated to the program. Second, they are part of the state government, and can be delegated any powers exercised by the state, as well as receive ongoing financial support from the state and federal governments. Third, state area boundaries often coincide with those of other key services, which facilitates coordination; for example, Michigan's eight civil defense districts serve also as police areas. Fourth, state areas more closely approximate civil defense zones geographically than do regional planning commissions, COG's and other areawide instrumentalities.

Offsetting these benefits is the fact that most state area offices lack the staff capability to conduct zone civil defense activities. Many are unknown to, or are poorly regarded by, area government officials, who might also resent them if the state offices attempted to become more active

and to orchestrate emergency planning and operations. Many big city or urban county civil defense agencies are larger than their state area offices. This has implications for the role of the state district, especially since area civil defense officials have coercive powers over counties and municipalities only when a state of emergency is declared by the governor.

Nevertheless, state areas emerge as preferable to regional planning commissions, COG's, or special districts. The potential authority of these instrumentalities in a crisis is restricted by severe legal complications as well as by practical political factors. The state area constraints of staffing and funding can be remedied, if the Office of Civil Defense and the states decide to adapt these units for zone civil defense purposes. The boundaries of state districts can be rearranged to match desired zone configurations, though doing so may throw off the alignment of civil defense areas with other service districts.

8. Interstate Compact Organizations. Seventy-five of the 173 OBE areas cut across state boundaries; of these, 54 are bi-states, 16 are tri-state, four involve four states, and one cuts through five states. Of the 10 largest cities in the United States, all but Los Angeles and San Francisco are located in interstate OBE zones-- New York (three states); Chicago (two states); Philadelphia (three states); Detroit (two states); Boston (three states); Washington, D. C. (three states); Pittsburgh (five states); and St. Louis (two states).

This fact suggests that zone civil defense arrangements-- for planning and, more critically, for operations-- must have a broader

jurisdictional base than that of any state area civil defense office and of most regional planning commissions or COG's. The Federal Civil Defense Act of 1950 authorizes interstate civil defense compacts, unless the House and Senate by concurrent resolution disapprove them within 60 days of their submission. Many states have entered into civil defense compacts and at least 10 states permit interstate, interlocal agreements. Like their strictly local counterparts, however, interstate mutual aid agreements are voluntary and vague, and are not tailored specifically to metropolitan areas.

9. Federal OCD Regional Offices. Each OCD region could be assigned responsibility for the zones it contains (few of which cut across region boundaries). Alternatively, zone planning could be conducted chiefly by teams from headquarters, based, during the planning process, in a regional office or in the zones themselves. As proposed above, the federal government should pay for ZENN activities regardless of who actually performs it, and the impetus and broad guidelines likewise will come from Washington.

The Office of Civil Defense can use the financial aid and surplus equipment it controls as levers to obtain needed state and local cooperation. OCD also may be better positioned than any local or regional entity, or even than a state civil defense agency, to persuade states to adapt their emergency statutes to accommodate the ZENN strategy, and to cooperate with neighboring states in dealing with interstate civil defense zones. Federal and state interagency liaison might be achieved through councils patterned

after the federal executive boards, which were established in different parts of the country to facilitate coordination of the regional offices of major federal agencies.

The negative feature of this federal approach, which clearly has appeal, is that local and state governments will charge federal encroachment. This then poses the problem of how to secure their cooperation but still to get on with the job.

Conclusion on the Question of Jurisdiction

As we have indicated at the outset of the discussion of jurisdiction, no substantial problem is posed if the issue is how to provide an organizational situs just for the technical planning activities of the zonal system. The least troublesome mechanism would be the creation of a new entity through the simple mechanism of a nonprofit corporation. It would have the capacity to receive funds and dispense them, and related formal authority to conduct the technical aspects of the zonal planning system and the logistics of the ZENN board and staff. The OCD regional director for the area in question would convene the various state and local governments, persuade them to cooperate in their participation through the ZENN board mechanism, and then undertake the formation of a ZENN corporation (several individuals can do the job on a personal basis, and the legal and filing costs are marginal).

We recommend this approach as a first step implementation of the zonal civil defense concept. It is neat and simple and it creates an entity whose sole raison d'etre is to deal with nuclear civil defense

planning for the zone. Questions of competition, red tape and priorities are overcome.

By itself this approach cannot accomplish as well the requirements of zonal building and operating systems and postattack recovery. That involves not only governmental power, but unusual and indeed extreme use of governmental power. Let us understand what is involved:

1. The ZENN system must devise a plan for the total use of all resources within the zone, which will be accepted universally in the event of a crisis.

2. When a crisis arises, a preconceived planning system, involving major allocations of resources must begin to move efficiently, without argument and debate. A command and control network is needed which can assure the plan's implementation, using force if need be to back its decisions.

3. After an attack, the same system becomes first a martial law-type government, trying to preserve what is left of the population and economy and reducing the devastation that has been wrought. It may have to function without outside assistance, if many areas are targeted at once (not an illogical presumption).

4. Once the imminent dangers of fire, radiation fallout, and the like have passed, an "instant" postattack government must come into being. While its form and structure will change as the weeks pass, it is not really aimed at restoration of the status quo ante. It is hard to conceive of restoring the preattack system of governments once society has been so violently uprooted. To be sure constitutional and democratic

principles will remain vital and viable goals, but the immediate need is to revitalize a highly traumatized society.

All things considered, the ZENN system itself must be attuned to major transference of power, and most of the organizational or jurisdictional models suggested above will not be fully appropriate.

Two conclusions, therefore, may be drawn. First, an evolving power system must be developed that is appropriate to each time/activity phase and to the magnitude of the problem being confronted at each phase. Second, the machinery needed may well vary from zone to zone, depending on a variety of political, constitutional, and economic considerations.

It is manifest that a major job of the ZENN planning system will be to devise the governmental structure and distribution of power, and to consider a variety of needs that go beyond the kind of general grants and precepts that have prevailed thus far.

As a final part of our model building exercise, we offer the following, not as absolutes, but as guides in the development of ZENN as a long range organizational form.

1. All federal and, hopefully, all state funds for civil defense to be used within a zone shall be allocated to the ZENN board to be distributed by it and in accordance with its plans, rather than by federal or state directions.

2. No local civil defense entity would be entitled to any such allocations unless it agrees to participate in the ZENN planning and building systems. This includes agreement to accept the ZENN plan when it is

developed (the quid pro quo is inclusion of the local government in the planning process).

3. A ZENN nonprofit corporation should be used and should be so designed as to be convertible into a governmental instrumentality of the state and federal governments upon the moment of a nuclear attack or upon the promulgation of a civil defense emergency by the President. At that moment ZENN would become the single government for the zone and its procedures and delegations as authorized by the ZENN plan would have the force of law. Constitutionally, this means that the emergency powers of the President and of the governors concerned would be delegated to the ZENN instrumentality.

4. During a crisis all local officials and employees would become members of the ZENN instrumentality. Law enforcement officers would have ZENN-wide territorial jurisdiction, including the right to make arrests, protect or appropriate property, and to carry out commands.

5. A crucial element in the ZENN plan should be the reduction during peacetime of the number of local civil defense agencies. Local government legislators and political executives must be convinced that they have more to gain than to lose in pooling resources. The elimination of minor civil defense offices should be rewarded with financial incentives.

#### Conclusion

If analysis of the points offered in this report demonstrate the continued attraction of the zonal civil defense concept, then it may be useful to consider specific geographic areas for demonstration possibilities, preceded by a simulation exercise of the ZENN system. Toward this

third part of the report which follows concentrates attention on  
- initial demonstration ZENN systems: Los Angeles and San Francisco.  
far one from another and from other parts of the nation. Since  
- . . . California has had a strong state civil defense or emergen-  
- . . . some of the rudiments of a zonal system already are present,  
- . . . the state area offices and the division of the state into  
- . . . But the nature of present interrelationships among local actors  
- . . . essentially civil defense agencies sober the discussion of the zonal  
- . . . overall and can be utilized as a means of testing feasibility.

Part Three

## CASE STUDIES

Los Angeles Civil Defense Zone

The Los Angeles Office of Business Economics (OBE) area encompasses 10 counties and stretches nearly 700 miles north to south (see Map 1). Its size, contours, and distribution of population and economic resources, as defined by the OBE, pose the question whether it is an appropriate base for civil defense activities. Several modifications should be considered. First, two counties-- Mono and Inyo-- should be excluded from the zone. They are situated far from Los Angeles and have little capacity to assist other jurisdictions or to host evacuees. The largest city in either county numbers only 3,500 inhabitants, and the combined population of the two counties is just over 19,000 persons.

Second, San Diego and Kern Counties should be added to the Los Angeles OBE area. To produce the optimal civil defense zone, San Diego, a separate OBE area, should be included also, as it is less than 120 miles from Los Angeles and has a large population and substantial economic military resources. San Diego itself could be a target, with Los Angeles acting as the prime center for recovery efforts. Kern County, located in the Fresno OBE area, should be included because it borders Los Angeles; its major city, Bakersfield (population 68,000), is linked to Los Angeles by a 110-mile interstate highway.

The proposed Los Angeles civil defense zone encompasses 10 counties (see Map 2)-- Los Angeles, Ventura, Santa Barbara, San Luis Obispo, Orange,

Map 1

LOS ANGELES OBE AREA



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Map 2

PROPOSED LOS ANGELES ZONE



Kern, San Diego, Imperial, Riverside and San Bernardino. The last three counties are included in their entirety, although the resources and residents are located almost exclusively in the southwest tip of San Bernardino, the western one-half of Riverside, and the Brawley-El Centro urbanized core of Imperial counties. The remainder of these counties consists chiefly of unsettled and inhospitable desert lands.

State Civil Defense Arrangements

In 1970, California substantially revised its state Civil Defense and Disaster Plan, originally issued in 1963, and enacted a new Emergency Services Act. The disaster statutes were shifted from the Military and Veterans Code to the Government Code,<sup>1</sup> reflecting greater emphasis on natural and civil, as opposed to war-related, emergencies. The Emergency Services Act gives local governments more power to declare curfews and take other emergency actions. It also eliminates the classification of "extreme emergency." Three types of crisis are defined-- a "war emergency," a "state of emergency" (peacetime), and a "local emergency."

The state Office of Emergency Services, formerly the state disaster office, operates through six mutual aid regions (see Map 3), each of which has its own emergency operating center (EOC). Budget and staff cuts in recent years-- the present Office of Emergency Services' staff totals approximately 90 persons-- have prompted consolidation of Regions I and VI and Regions III and IV. The Region I/VI office is responsible for 11 counties in southern California (see Map 4), including every county in the proposed

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1. Government Code, Title 2, Division 1, Chapter 7.

Map 3

STATE OFFICE OF EMERGENCY SERVICES  
MUTUAL AID REGIONS



Map 4

STATE OFFICE OF EMERGENCY SERVICES REGIONS I/VI



zone except Kern. Its staff of five persons<sup>1</sup>-- down from 15 several years ago-- essentially maintains liaison with the county and major city civil defense agencies in the region. Kern County lies in Region V whose Office of Emergency Services staff consists of the manager and one secretary.

The chain of command in a war emergency is shown on Chart 1. The governor in such a crisis can delegate his powers to the OES director and through him to regional managers. Counties become the basic operational units. Interlocal cooperation in emergencies beyond local control is governed by the California Master Mutual Aid Agreement (CMMAA), to which all state agencies, counties, and many cities are signatories. Local fire, police, and other service chiefs designate one of their number to be county-wide coordinators of their respective functions. Service heads for the entire mutual aid region are selected in the same manner. For example, the Los Angeles County sheriff is the Region I/VI law enforcement director.

#### Local Civil Defense Arrangements

The proposed Los Angeles civil defense zone contains 12 million persons, 80 percent of whom live in Los Angeles, Orange, and San Diego Counties. In the following section, existing civil defense arrangements in the 10 counties of the zone are reviewed, and the capabilities of several multicounty organizations which might play a role in zonal civil defense activities are evaluated. Finally, guidelines for establishing the zonal system are proposed.

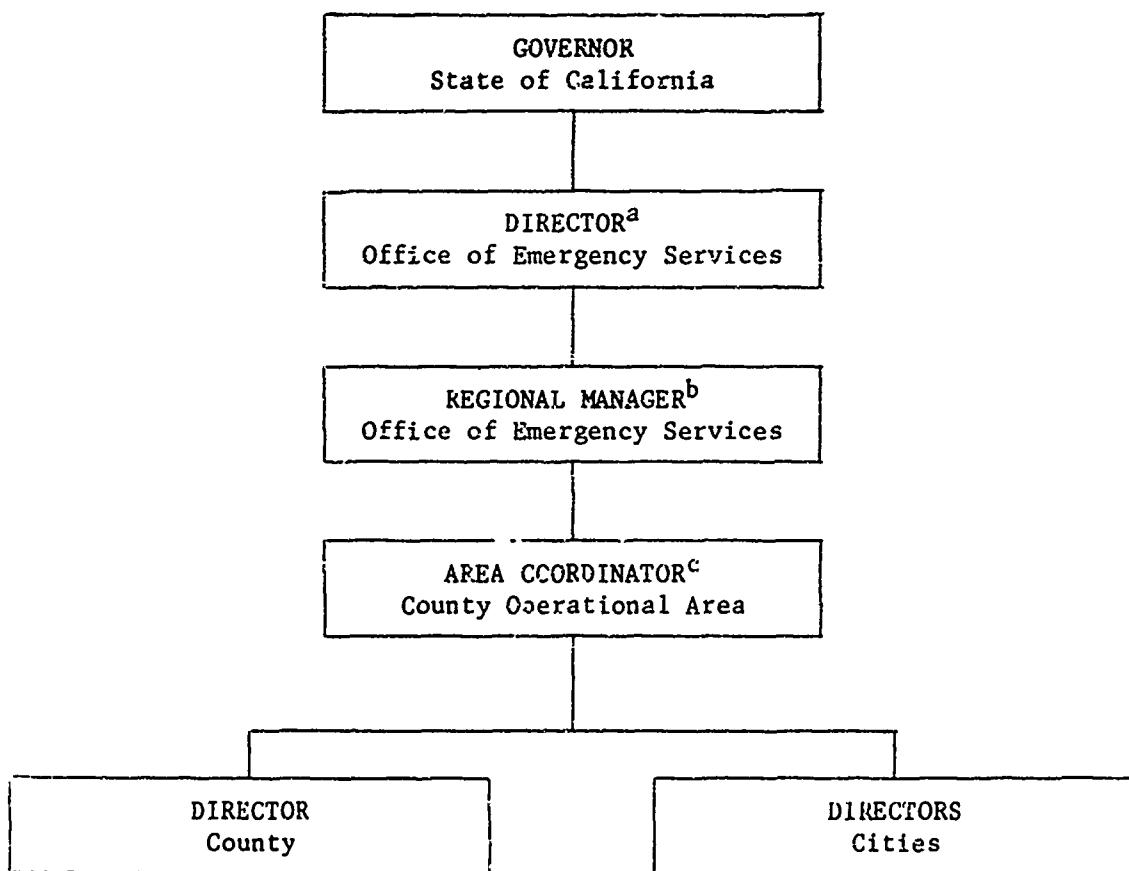
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1. The staff comprises the director, an assistant, RADEF technician, a communications officer, and a secretary.

Chart 1

INTERJURISDICTIONAL CHART

Line of Authority During a  
State of War Emergency



Line of Authority

- a. Has emergency authority delegated from the governor.
- b. Has emergency authority delegated from the director, Office of Emergency Services.
- c. Has emergency authority derived from a pre-emergency agreement among member jurisdictions (cities and county) and/or as may be delegated from higher authorities.

Los Angeles County. Los Angeles County houses 60 percent of the population of the entire zone; its largest cities are Los Angeles (population 2.8 million) and Long Beach (population 347,000), but three others-- Torrance, Glendale, and Pasadena-- each contain more than 100,000 residents. In addition to its large population, Los Angeles County is one of the nation's most important economic centers; several hundred industrial firms are located around the Los Angeles International Airport alone. The county also contains a U. S. Navy Fleet Operating Base.

Responsibility for civil defense at the county level is vested in the Los Angeles County and Cities Civil Defense and Disaster Commission, composed of three representatives of the county, three of Los Angeles City, and three of the remaining 76 municipalities in the county. It reviews and coordinates local and county disaster plans, and promotes training and other civil defense programs, but it has no direct control over municipal disaster activities.

The county civil defense staff consists of the full time secretary to the commission, a coordinator of disaster services and a secretary. Formally, there are nine other positions, but as of January 1971, these were unfilled, unfunded or both. Overall, the county is reimbursed by the federal government for one-half the salaries of 28 full time and 25 part time personnel, the vast majority of whom are housed in various line agencies of county government. The county civil defense budget totals nearly \$700,000, of which half is reimbursed by federal civil defense. The county maintains an EOC, but it has not completed a community shelter plan.

Los Angeles County is divided into seven lettered civil defense areas. Areas A, C, and F are dominated respectively by Los Angeles City, Pasadena, and Long Beach. Area B encompasses the unincorporated portion of the county. Areas D, E, and G have multicity memberships under the state Joint Powers Agreement. The areas help member communities revise civil defense plans, train personnel for nuclear contingencies, upgrade shelter programs, and disseminate information on emergency preparedness. Area organizations derive their funds from assessments of members plus federal matching grants, and they typically maintain staffs of one or two persons.

The area concept originated about 1954 as a means to facilitate mutual aid within the county, and to provide liaison between the county and its 77 incorporated municipalities. Several factors limit the utility of the area agencies. First, not all cities are dues paying participants in their area associations. For example, only 12 of the 20 cities in Area D are signatories to its mutual aid agreement and are active in the area of organization. Area coordinators would work with all localities in their jurisdiction in the event of a nuclear crisis, but they feel obligated to focus their attention in peacetime on their active members. Thus in an emergency, they will be relatively unfamiliar with many municipalities in their area.

A second deficiency as to the appropriateness of this arrangement for a ZENN-type system is that the districts do not coincide with any general purpose government, so that they have no operating resources beyond those volunteered by members. Finally, the area coordinators themselves,

each of whom was interviewed by the authors, voice reservations about the peacetime utility of their organizations, and uncertainty about their role in a nuclear catastrophe. Several believe they perform a useful function in facilitating interlocal cooperation and exchanges of information, but several others suggested that the area concept lacks substance and should be abolished.

Most municipalities in Los Angeles County have civil defense agencies, though many of these are nominal. A number of localities have completed fallout shelter surveys, and several-- among them, Pasadena and Glendale-- have also constructed EOC's. Civil defense arrangements in the Los Angeles and Long Beach area, the two largest cities in the county, are outlined below.

The Los Angeles Civil Defense and Disaster Corps is composed of the following divisions-- police, fire, emergency medical, public works, utilities, property, communications, personnel and recruitment, emergency welfare, harbor, and schools. Each division is under the control of the appropriate city agency, whose chiefs collectively comprise the city civil defense and disaster board. The mayor activates and directs the corps in a crisis, although the board has its own authority, and can control the city departments by virtue of its membership. The police chief, who by law is permanent chairman of the board, is deputy commander of operations of the corps.

Up to 1964, the Los Angeles City civil defense agency was housed in the mayor's office. That year, it was shifted to the chief administrative officer's department. Many of its 25 staff members were moved to line

agencies, and others were let go. Today, the civil defense coordinator has one part time assistant and one secretary; but 30 personnel in other city agencies are covered by the Office of Civil Defense Personnel and Administration program, so that the city civil defense budget for personnel alone exceeds \$400,000.

A city EOC is being built in the new police headquarters and city communications building being constructed adjacent to City Hall. Emergency communications and the civil defense office will be located several floors underground in this facility, where they will enjoy limited blast protection. A smaller communications and microwave center was completed recently at Mt. Lee, in Hollywood, and the two facilities will be directly linked when both are in operation.

The Long Beach Department of Emergency Preparedness has five full time staff members and a budget of \$92,000. Its head cites as his chief problems: (1) lack of control over the use of emergency resources, (2) the absence of blast shelters and of any attention to this deficiency, and (3) the unreliability of mutual aid arrangements. Long Beach has sufficient fallout shelter spaces for its residents, but not all of the spaces have been marked or stocked.

Orange County. Orange County is the smallest county geographically in the Los Angeles zone. However, it is the second largest in population, with 1.4 million residents (representing a 100 percent increase since 1960); four of its 25 cities-- Anaheim, Garden Grove, Huntington Beach, and Santa Ana-- each have more than 100,000 residents. The heavily urbanized northern end of the county, which contains Navy and Marine Corps aid stations and a

major Naval weapons depot, merges with the Los Angeles-Long Beach metropolitan area and would be directly affected by an attack on that region (and vice versa).

Because of its conservative political orientation, the county for years declined to participate in Office of Civil Defense programs. Since 1965, it has received federal equipment and other assistance, though not Personnel and Administration grants. The county civil defense staff consists of the director and a secretary. The annual budget averages about \$42,000, but additional funds have been requested to equip a planned EQC.

A county community shelter plan is scheduled for completion in the fall of 1971. The civil defense director estimates that shelter spaces are available for only one-fourth of the resident population, and thousands of visitors are attracted yearly by Disneyland and other public facilities located in the county. In a nuclear emergency, the chairman of the county board of supervisors becomes county coordinator of disaster operations, while the civil defense director serves as his adviser.

Four cities in the county have full time civil defense personnel. In the others, a police or other service official serves as civil defense chief as well. The county and all but one of the municipalities have signed the state Master Mutual Aid Agreement. Anaheim, the largest city in the county (population 165,000), maintains a civil defense office with three full time staff members and a \$53,000 budget. Its director is responsible to the city manager and under no circumstances would he assume command authority.

San Diego County. San Diego County has 1.3 million residents-- of whom one-half live in the city of San Diego-- and it contains extensive military facilities. It is possible that San Diego would be targeted in an enemy attack. Whether or not this occurred, the resources of the San Diego and Los Angeles metropolitan areas should be pooled in nuclear survival operations. Despite the variety of civil defense and mutual aid arrangements, it is unclear whether such pooling would occur and who would direct reallocations of personnel and material resources.

Civil defense services for all of San Diego County-- including the 13 cities and the unincorporated areas under the jurisdiction of the county government-- are provided through the Unified San Diego County Civil Defense and Disaster Organization, created in 1961. No municipality has a full time civil defense position; rather, each has passed an ordinance authorizing the chief executive to sign an agreement with other cities and with the county, under which the county performs civil defense functions for all signatories. A representative of each city council, plus the chairman of the county board of supervisors, comprise the Unified San Diego Civil Defense and Disaster Council. The council is empowered to set policy and recommend a budget for the unified civil defense agency.

The council has divided the county into 14 operational areas, consisting of the 13 cities and the remaining land under the county's jurisdiction. It is incumbent upon the municipalities to adopt civil defense programs that are compatible with the council's recommendations. Thus the authority to implement proposals of the unified organization lies exclusively with the various localities. Any signatory to the agreement can withdraw

after giving notice 120 days before the start of the fiscal year in which it will terminate its participation.

The staff of the unified agency, which presently numbers 15 persons, are county employees. The county has the power to hire and fire them even though they are under the direction of the unified council. The budget of the agency is about \$225,000, of which one-half comes from the county, and one-half from the cities. San Diego civil defense authorities have marked and stocked 400,000 shelter spaces, which nearly exhausts the available supply. A county EOC has been constructed at a cost of \$230,000.

The San Diego unified cities-counties arrangements is widely regarded by civil defense professionals as a model of structured interlocal co-operation. The value lies largely, however, in the fact that every municipality is a member. Analogous civil defense organizations in other counties -- as in Santa Clara County (described in the San Francisco zone study) -- are constrained by less than 100 percent participation on the part of their cities. Friction among members often results from negotiations about representation in a funding of the unified disaster agency.

Imperial County. The 73,000 residents of Imperial are concentrated in the center of the county, where all seven incorporated municipalities -- and the El Centro Naval Air Force -- are located. The remainder of the county is largely desert, with no communities over 1,000 population. Two highways connect the Brawley-El Centro urban core with San Diego, 120 miles west, while two others extend to Indio and Palm Springs, 100 miles to the northwest. Imperial is a shelter-deficient county. All available spaces have been marked

and stocked; but this amounts to only 38,000 spaces, which would not nearly accommodate the resident population, much less refugees from other areas.

A Joint City and County Council Civil Defense and Disaster Planning Organization, similar to the San Diego unified organization, provides civil defense services county-wide. The governing county disaster council comprises the mayor or city administrator of each city, plus the chairman of the county board of supervisors. The executive secretary to the council, together with three assistants, constitutes the civil defense staff.<sup>1</sup> In an emergency, the chairman of the board of supervisors is the operating head, while the executive secretary serves as his deputy.

The joint organization has a budget of about \$40,000, excluding several items such as the value of the office space contributed by the county in the courthouse. An emergency operating center being constructed in the courthouse basement is scheduled for completion late in 1971. Each city has designated its top official city defense director, but none has a full time civil defense staff, as the joint organization performs that function. The county and all municipalities are signatories to the state Master Mutual Aid Agreement. While no formal compacts exist with Mexico, interlocal mutual aid is provided across the border as the occasion warrants.

Riverside County. The size and topography of this county vitally affect its civil defense activities. The San Jacinto Mountains cut the county north to south about one-third of the way towards its eastern end. The population is concentrated in the area west of this range, where March

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1. The executive secretary doubles as county fire chief. Only two of the four civil defense staff members are covered under the federal P & A program.

Air Force Base, an old Strategic Air Command installation, is located. Palm Springs, Indio and two other cities lie in a valley in the desert just east of the mountains, but Blythe (population 6,000) is the only other community of significance in the remainder of the huge desert region.

The Riverside County Disaster Office is a separate department of the government, with five professional and three clerical personnel; its operating budget is \$106,000. In an emergency, the chairman of the county board of supervisors becomes the direct agent of the governor, while the civil defense director serves as his executive assistant. The county chief administrative officer is termed the chief of staff in a crisis.

The county is divided into nine civil defense areas, based on school districts. Each district contains at least one incorporated city, which technically is responsible for civil defense district-wide. However, several communities-- in particular Perris, Blythe and Elsinore-- have virtually no emergency operating capabilities, and it is unrealistic to expect them to handle problems other than their own. All three of these towns, for example, lack professional fire departments, and must rely on volunteer firemen.

The county civil defense director intends to abolish the present districts and replace them with shelter districts (shelter spaces are concentrated in five or six of the present districts); these might be formed around Riverside, Corona, Palm Springs, Indio and several other communities. Each of the 16 cities in the county currently has a civil defense plan, which is a modified version of the county plan. The county provides civil defense services for two cities under contract. There are two county EOC's, one in

Riverside and the other in Indio, which has been designated the legal alternate seat of government. The Indio EOC is a joint city-county facility, staffed by personnel from both governments.

San Bernardino County. The largest county geographically in the United States, San Bernardino contains 13 million acres; the bulk is desert, but high mountains are found at the western edge of the county. Most of the 672,000 residents live in the extreme southwest corner of the county, where Norton Air Force Base is also situated. Only three significant communities-- Victorville (home of George Air Force Base), Barstow, and Needles-- lie outside this small area, and their combined population is only 31,000 persons. There are 16 incorporated municipalities in the county, the largest of which is the city of San Bernardino (population 106,000), but there are communities of up to 20,000 residents which are unincorporated and therefore under the direct jurisdiction of the county government. Enormous tracts of land are occupied by a Marine Corps training center, Fort Irwin Military Reservation, and a Navy Ordnance Test Station.

The San Bernardino civil defense head was hired as county communications officer, and later was appointed civil defense director as well. Theoretically, his time is evenly divided between the two jobs, but he devotes a disproportionate share to civil defense activities. His staff consists of two full time and two part time clerical personnel.<sup>1</sup> In an emergency, the chairman of the county board of supervisors becomes director of disaster operations, while the civil defense chief serves as his agent.

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1. The county, however, is reimbursed under the P & A program for four full time and four part time personnel.

The county civil defense budget is \$67,000. An EOC is located in the city of San Bernardino, and an alternate has been established in Barstow, 68 miles north of the county seat in the desert. Seventy-three thousand shelter spaces have been marked; this number equals only one-ninth of the county population, but the civil defense director asserts that there are no other spaces.

Six of the 15 cities have designated their fire chiefs director of civil defense, and one has assigned its police chief this function. There are many interlocal police and fire mutual aid agreements, and the county has mutual aid arrangements with neighboring Los Angeles County. The California Division of Forestry handles wildland fires in unincorporated areas where no special fire district exists.

Recent floods and forest fires have tested San Bernardino's emergency response arrangements. Fires in the fall of 1970 required assistance from communities as far away as Sacramento and San Diego, as well as from the 35 fire departments in the county. Many different radio frequencies were used by the various fire agencies, which hampered coordination. The presence of firefighters ranging from inexperienced volunteers to highly trained professionals also posed command and deployment problems. In addition, the fires lasted three weeks, rather than the typical six to seven days, which severely strained the normal nonreimbursement mutual aid arrangements. As in the case of the floods several years before, the state Division of Forestry, not the county or Region VI civil defense agencies, assumed the leadership role in emergency operations.

Ventura County. Located on the western boundary of Los Angeles County, Ventura has approximately 375,000 residents. The Ventura civil defense agency is a staff unit in the county sheriff's department. It has three full time personnel and a budget of \$35,000. There is no EOC, although the key emergency services have their own communications networks, and a multiservice communications headquarters is planned for the new civic center in the city of Ventura. A community shelter plan was developed for the county some years ago, but it has not been updated in five to seven years. Since the county population has mushroomed nearly 90 percent in the past decade to 375,000, an out-of-date community shelter plan has limited utility.

The county sheriff becomes civil defense coordinator in the event of a war-related crisis. In other crises, leadership depends on the nature of the emergency: in a major fire, the county fire chief assumes the pivotal role; in a flood, the head of the county Public Works Department coordinates operations; and in a riot or other police emergency, the sheriff is the central figure. All nine municipalities in the county have fire and police mutual aid agreements. A fire protection district includes the county government and five cities, and the county has fire mutual aid agreements with the remaining four cities.

The county performs civil defense functions for seven municipalities, although this amounts to maintaining liaison on their behalf with appropriate state and federal agencies. Oxnard and Ventura, the largest cities, have their own civil defense agencies, but the staffs in each instance apparently are small and part time. Overall, the county and localities

are not particularly concerned about nuclear contingencies. Instead, their disaster activities are geared to floods and fires, which are an almost annual occurrence.

Santa Barbara County. Between 1953 and 1966, Santa Barbara County (population 260,000) suffered four major wildfires, which consumed more than 300,000 acres, or nearly 18 percent of the total land area of the county. The cost of the largest of these, the Coyote Fire of September 1964, was over \$21 million. Early in 1969, the county was hit by a serious flood. Four civil disturbances occurred the following year. In short, the county has had extensive experience with both natural and civil disasters, all of which required outside assistance.

The Santa Barbara Office of Civil Defense consists of one secretary and the director, who doubles as county veterans services officer and spends only one-fourth of his time on civil defense matters. The civil defense budget of \$12,600 includes no federal matching funds, since the county decided the scale of its activities does not warrant the red tape it associates with federal assistance. Of the five incorporated municipalities in the county, only Santa Barbara (population 70,000) has a substantial civil defense operation with two personnel. Carpinteria (population 6,800) has a nominal agency, and Lompoc (population 24,000) has hired a new civil defense director and is reviving its program.

The county civil defense chief rarely plays an important role in emergencies; he complains, in fact, that in several instances he was not even informed promptly of a fire, flood or other crisis. (It is uncertain whether it would make any difference if he were.) The chief administrative

officer of the county is the legal authority in a disaster. In the 1964 Coyote Fire, the county flood control officer coordinated that aspect of the emergency effort, while the sheriff directed evacuation activities. In the January 1970 student riot in Isla Vista, the sheriff requested assistance from the Los Angeles County sheriff, who is also the Region I law enforcement coordinator. The Los Angeles sheriff dispatched officers from his own force and from Ventura and San Luis Obispo Counties. However, he criticized the fact that Santa Barbara sought outside help before exhausting its own resources. The cost to Los Angeles County of its assistance to Santa Barbara amounted to \$5,500 per day, and the county is still embroiled in lawsuits stemming from actions by its police officers during that disturbance. As a result of this experience, many local officials-- particularly those of Los Angeles County-- argue strongly for a more precise definition of the scope and conditions of mutual aid, and for assumption by the state government of a greater share of the expenses incurred in interlocal rendering of assistance.

San Luis Obispo County. San Luis Obispo (population 105,000) is more remote from Los Angeles than any other county in the civil defense zone. There is only one major connecting highway, much of whose 190 miles winds through mountains and rolling hills. A deputy to the county administrator is the county civil defense director who serves on a part time basis. His budget for this purpose is about \$10,000 which includes no federal Personnel and Administration funds. There is no county EOC and though a number of shelter spaces have been marked and stocked, there is no community shelter program.

The county board of supervisors retains ultimate authority in an emergency, but the county administrator exercises substantial powers-- such as imposing a curfew-- until the board can meet to review and approve his actions. The civil defense officer coordinates disaster operations, but he has no command authority except as agent of the county administrator. The sheriff, fire chief or county engineer generally direct emergency activities, depending on the nature of the crisis.

The city of San Luis Obispo (population 28,000) has a part time civil defense director. Each of the other five municipalities in the county has designated a local official to be civil defense chief, but these persons devote an appreciable amount of time to disasters only during an emergency itself. The cities are linked by fire, law enforcement, and disaster mutual aid agreements, and the county is a signatory to the state Master Mutual Aid Agreement. However, the county has relatively few resources to offer stricken neighbors and its own needs usually relate to floods or fires. Local interest in nuclear preparedness is negligible, and civil defense remains dormant.

Kern County. The southern boundary of Kern County (population 325,000) lies only 45 miles, by interstate highway, from the edge of the Los Angeles urbanized area, but the two are separated by the Tehachapi Mountains.

The Kern County civil defense office was a three-man unit in the Communications Department until the end of 1970, when both functions were transferred to the new General Services Department (GSD). An emergency services superintendent (ESS) hired recently for planning and logistical coordination is the only county civil defense official, although theoretically the entire 20-member GSD staff is available for disaster activities.

The civil defense budget is one-half the 1970 total of \$50,000. The ESS serves as executive secretary to the newly formed Kern County Emergency Council, composed of the heads of county agencies with emergency responsibilities.

In a nuclear crisis, the chairman of the county board of supervisors is director of operations, while the chief administrative officer acts as his deputy. Emergency resources are mobilized in a task force led by the county sheriff. The county disaster plan places the civil defense director above the sheriff, but in practice the reverse would hold true, given the sheriff's vastly greater resources, stature, and experience. The emergency statutes, therefore, are being revised to conform to the realities of crisis command patterns.

The county has no EOC per se, but a communications center in Bakersfield is equipped to work with all emergency services. At the local level, none of the 10 cities has a civil defense agency (Edwards Air Force Base and the Navy Ordnance Test Station at the northeast corner of the county have their own civil defense officers, however). All fire departments in the county are linked by mutual aid agreements, as are local police units. The county is a signatory to the state Master Mutual Aid Agreement. When disasters strike, the county tends to look to the north for assistance, chiefly to Kings, Tulare and Fresno Counties. It may be desirable to include these three counties in the Los Angeles civil defense zone, but satisfactory cooperative arrangements probably can be developed without doing so.

Summary of Local Civil Defense Capabilities

The preceding section describes civil defense arrangements in the 10 counties of the proposed Los Angeles zone. Chart 2 shows comparative data regarding population, number of incorporated cities, and civil defense staffing and budgets (including the federal contributions under the Personnel and Administration program). The chart indicates whether each county has an Office of Civil Defense approved emergency operating center (EOC) and the status of its community shelter plan (CSP).

In the aggregate, the zone contains just under 12 million persons, and 187 incorporated cities. The 10-county civil defense agencies have 44 personnel and are budgeted (fiscal year 1971) at \$1.3 million. Six counties have EOC's, while four do not. Five have CSP's, two do not, two have incomplete shelter programs, and one county has a plan that is complete but badly outdated. Six counties participate in the federal Personnel and Administration program, under which they received (fiscal year 1971) \$586,300 towards the salaries and administrative expenses of 33 full time and 59 part time personnel (many of these are not housed in county civil defense offices).

While they reveal substantial variations by county in the superficial measures of disaster preparedness activity, the figures on Chart 2 are not a reliable indicator of actual civil defense capability. Other significant factors include local civil defense arrangements, the past experience of civil defense and other emergency personnel in dealing with large-scale disasters, public awareness of where to go and what to do in a nuclear attack, and the like. Thus, the number of full time personnel in a county civil defense office may be far less important than the proven competence of those

Chart 2

LOS ANGELES CIVIL DEFENSE ZONE

County	1970 Population	Number of Incorporated Cities	Co. Civil Defense Staff		Co. Civil Defense Budget		Emergency Operating Center	Community Shelter Plan		
			In Civil Defense Agency <sup>a</sup>	Under P & A <sup>a</sup>	P & A Funds	Civil Defense Total				
				Part Time						
Imperial	73,000	7	4	--	2	\$ 8,600	\$ 40,000	Yes		
Los Angeles	6,974,000	77	3	25	28	356,100	700,000	Yes		
Kern	325,000	15	1	NP <sup>b</sup>	--	--	25,000	No Partial		
Orange	1,409,000	25	3	NP	--	--	42,000	Yes		
Riverside	450,000	16	8	--	7	44,800	106,000	Yes		
San Bernardino	672,000	15	5	4	4	38,800	67,000	Yes		
San Luis Obispo	105,000	6	1	NP	--	--	10,000	No Partial		
San Diego	1,318,000	13	14	2	15	113,800	225,000	Yes		
Santa Barbara	260,000	5	2	NP	--	--	12,600	No		
Ventura	374,000	9	3	2	3	24,200	35,000	No Outdated		
<b>T o t a l s</b>	<b>187</b>	<b>44</b>	<b>33</b>	<b>59</b>	<b>\$586,300</b>	<b>\$1,262,600</b>				

a. The number of persons covered under the Office of Civil Defense Personnel and Administration matching funds program often does not match that of the county civil defense agencies. This is because many personnel covered by P & A funds are housed in agencies other than the civil defense office; or, alternately, because not all civil defense office staff come under the P & A program.

b. NP-- not participating in Personnel and Administration matching funds program.

personnel and the respect they command from county elected and emergency service officials.

Southern California has suffered numerous major disasters in recent years-- floods, mudslides, forest fires, a major earthquake, offshore oil spills, and civil disturbances (notably the Watts riot of 1965 and the Santa Barbara student disorders of 1970). Many of these emergencies have necessitated assistance by the state government, and even by federal agencies. Localities as far away as Sacramento have dispatched aid in the case of devastating brush fires. These calamities, no matter how severe, of course are not comparable to a nuclear attack. But they offer some indication of the emergency preparedness of local governments in the zone, and of the past performance and potential capability of civil defense officials.

On balance, the record of southern California residents in handling emergencies has been superior. Several problem areas can be identified, however. First, local and even state officials have not always been familiar with procedures for declaring a state of emergency, or have been uncertain about the implications of various types of proclamation. Thus several declarations were issued regarding the Watts riot, which led to confusion about the relative roles of local, state and federal agencies in emergency operations. Each level of government seeks to buck the maximum share of disaster relief costs to a higher government; reports on the scope of the emergency and appropriate emergency declarations can be highly political, as is often the timing of the proclamation itself. The California Emergency Services Act, as noted was amended in 1970 to clarify this aspect of disaster activities.

A related problem area concerns interlocal mutual aid arrangements. Under the California Master Mutual Aid Agreement, the political jurisdiction which sends assistance is responsible for the expense incurred thereby. This feature has come under increasing attack, especially in the wake of the four successive outbreaks of student violence in Santa Barbara in 1970. In southern California, where the distances between sending and receiving locality often are far greater than they are in the northern part of the state, manpower and equipment dispatched to a stricken area frequently must remain for several days at a time, at substantial cost to the sending jurisdiction. After the Santa Barbara disturbances, the city of Los Angeles petitioned the state for reimbursement of a portion of its out-of-pocket costs. Although compensation was deemed unlikely, the precedent of the request is significant.

As Region I/VI law enforcement coordinator, the Los Angeles County sheriff is responsible for securing the necessary resources from within the region to meet the needs of an afflicted area. The sheriff argues, however, that any problem not controllable by a strong county is likely to require aid on a scale only the state government can provide, and that mutual aid arrangements should be revised to provide for immediate state intervention in emergencies beyond county control.

Most local officials maintain that existing mutual aid procedures have worked well, but others cite examples of instances where governments were reluctant to commit their resources outside their own boundaries. As the number and cost of natural catastrophes and civil disturbances mount, the present voluntary system of mutual aid may become unworkable. In designing zonal civil defense systems, therefore, provision must be made to anticipate

and deal with the possible breakdown of traditional mutual aid practices,  
particularly under the extraordinary conditions of nuclear attack.

A third constraint on disaster capabilities involves the use by fire, police and other emergency service agencies of disparate and sometimes incompatible equipment. The most frequent large-scale disasters in southern California are forest or brush fires. Typically, firefighting trucks are sent by a host of localities, by the state Division of Forestry, and even by the U. S. Forest Service. The use of differing radio frequencies and of fire hoses with attachments of varying sizes often has hindered efficient operations.

Finally, coordination is a major trouble spot in emergency activities. Under mutual aid agreements, the host jurisdiction controls the use of assisting men and material (although the visitors remain under the immediate command of their own officers). Situations have arisen in which the competence of the host officials to direct a large force from another locality or county has been questioned. This issue usually involves a local police or fire chief rather than civil defense coordinator, because the civil defense director rarely attempts to control local or visiting resources. Examples abound, in fact, of instances in which civil defense personnel play a marginal role in disaster activities, or are ignored totally.

Many civil defense officials shrug off this treatment with the disclaimer that their function, after all, is simply to assist the local political executive, and to facilitate coordination of emergency service agencies. The problem lies in the fact that other actors frequently perceive the civil

defense staff as useless even in this capacity, or else they do not know what precisely to expect of the civil defense officials in a crisis.

The size and complexity of the Los Angeles zone, coupled with the unpredictable consequences of a nuclear attack, poses tremendous obstacles to effective coordination. The principal task of the ZENN board, therefore, will be to develop the zonal command and logistical support structure which promises to be most reliable in a war-related catastrophe. Existing inter-local cooperative arrangements and instrumentalities which may be useful as precedents or a base for the ZENN system, are analyzed below.

Interlocal Agreements and Organizations

There are no existing operational and governmental instrumentalities, civil defense or otherwise, whose jurisdiction approximates that of the Los Angeles civil defense zone, but several regional entities warrant consideration as the chief operating or technical planning arm of the Zonal Emergency Nuclear Network Board. Among these are the Southern California Civil Defense and Disaster Association, the Southern California Association of Governments, the Office of Emergency Services Region I, and the California Highway Patrol. The capabilities of each with respect to zonal civil defense activities is discussed below.

The Southern California Civil Defense and Disaster Association is essentially a "trade" group of civil defense officers formed to promote disaster preparedness in the region and to facilitate the exchange of information among its members. Its executive director is the civil defense officer for the city of Pomona, in Los Angeles County. The active membership totals about 130 cities, counties, school districts, public utilities and

industries. Another 50 members occasionally attend meetings and sporadically pay their dues.

The attractiveness of the association as the agent for zonal civil defense activities is chiefly that its raison d'etre is disaster preparedness, and that its members include many municipal and county governments throughout the proposed zone. However, the organization has no staff capability, no authority over its members, and no state recognized emergency functions. In this respect it might be on a par with a specially funded nonprofit organization, or it could serve as one. and the comments in the first part of this report should be reversed.

The Southern California Association of Governments (SCAG) comprises 106 cities and six counties (see Map 5)-- Los Angeles, Orange, Imperial, Riverside, San Bernardino and Ventura-- with a total population of nearly 10 million persons. The organization budget is \$5.6 million in federal grants, plus \$180,000 in member dues; there is no state funding. The staff of 24 professionals and 12 clerical personnel, based in Los Angeles, conducts regional planning in such fields as land use, water, sewers and solid waste management, airport and other transportation facilities, and manpower.

SCAG presently has no dealings with civil defense agencies in the region, and it has exhibited no interest in nuclear-related emergency planning. The organization nevertheless might accept a role in zonal civil defense activities, if highly attractive financial incentives were offered. And it could be a useful catalyst in stimulating interest on the part of its members. One drawback is that four of the 10 counties in the proposed zone-- including San Diego, a critical component-- do not belong to SCAG. Another is that SCAG

Map 5

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS



has no authority over its members, who can withdraw at any time, or decline to participate in civil defense endeavors. Finally, the loose, collective nature of the organization, as well as its weak legal base, constrains SCAG's capacity to direct pre-crisis and crisis operations.

Most state government agencies are organized by region, although the boundaries vary with the function. Most relevant to this inquiry are the Office of Emergency Services (OES) and the California Highway Patrol (CHP). Region I of the OES comprises five counties-- Los Angeles, Orange, Ventura, Santa Barbara and San Luis Obispo-- all of which lie in the civil defense zone. Region VI encompasses the six counties of San Diego, Imperial, Riverside, San Bernardino, Inyo and Mono. Dropping the last two of these, and adding Kern County, would produce a region commensurate with the proposed civil defense zone. The Region I/VI OES office, with three personnel, at best is able to maintain nominal liaison with the counties and major cities in its jurisdiction. In major emergencies, its staff is augmented by other state officials, and usually by federal representatives as well, as occurred after the spring 1971 earthquake in Los Angeles.

With sufficient federal funding, the staff of the OES Region I/VI office could be augmented to achieve the capability to coordinate zonal planning and pre-crisis preparedness activities. Much of the technical planning could be performed by private consultants under the supervision of the OES staff. The OES regional director might serve as secretary to a board comprised of representatives of the counties and major cities of the zone. The OES regional office could assume a key role in an actual disaster without major changes in existing state laws as this already is permitted

under the state Emergency Services Act. However, the OES regional office has little visibility or stature, few links with the police and other agencies of area governments, and no significant staff capability. Money can eliminate the last of these deficiencies, but the others are more troublesome.

For zonal civil defense activities, the best alternative to the OES, among state agencies, is the California Highway Patrol. Its 6,000 officers are experienced professionals who are organized by region and have uniform training. They are highly mobile, have a common communications system, and can be pulled from their normal patrol duties and assigned to a particular problem area at little cost. Moreover, the personnel are uniformed and are widely recognized by local governments and the public as possessing legitimate authority. These attributes will make the CHP a more reliable and effective force in a nuclear emergency than the National Guard or any other single state or local operating agency. This may give the CHP the greatest potential to direct or coordinate emergency operations region-wide as well.

The utility of the California Highway Patrol in pre-crisis civil defense zone activities is far less certain. The CHP may be reluctant to assume major responsibilities in this area; alternatively, local governments may resist what they view as CHP infringement on local autonomy (certainly, few localities today perceive the OES regional staff as a threat). For example, the Los Angeles Sheriff's Department, with 5,000 and 7,000 officers respectively, both have more men than the CHP has based in all of southern California.

On the other hand, the CHP may be better positioned than any civil defense agency to secure local cooperation in disaster planning, because it

commands great respect among local officials. It is important that the zone civil defense authority be able to work well with local law enforcement agencies, especially as state law mandates that the sheriff of the most populous counties-- Alameda, Los Angeles, Orange, San Diego, San Francisco and Santa Clara-- be ex officio civil defense chiefs.

The OCD Region VII office-- which covers California and four other states, plus American Samoa and Guam-- logically might play a key role in Los Angeles zone civil defense planning and pre-crisis operations. Five of its 40 staff members are assigned to California; all are based in the Santa Rosa regional headquarters, rather than in various parts of the state. These personnel chiefly provide liaison between Office of Civil Defense and state, county and municipal civil defense agencies.

In the spring 1971 Los Angeles earthquake, the Office of Emergency Preparedness regional director headed a disaster team comprising officials of federal agencies involved in recovery operations. Office of Civil Defense was not invited to appoint a representative to this team, and its offer of assistance was declined by OEP, which coordinated federal relief activities. This action frustrated Office of Civil Defense officials, who have been encouraged by Washington to aid in any way possible in all kinds of disasters. Many emergency service personnel in the Los Angeles region involved in the earthquake operation are covered by the Personnel and Administration program, so that Office of Civil Defense contributed indirectly to the relief effort. However, the absence of direct participation by Office of Civil Defense regional office staff suggests that Office of Emergency Preparedness considers them marginally useful, or, alternately, that relations between the

two agencies should be improved to facilitate optimum utilization of all available federal resources.

The Office of Civil Defense Region VII presently lacks an office in southern California from which zonal civil defense activities could be mounted; nor does it have the staff capability to perform the requisite technical planning and to coordinate day-to-day building system operations. Its geographic jurisdiction vastly exceeds that of the zone, and it does not have close ties with county and local governments in the area. While these deficiencies can be remedied, it remains doubtful whether the desired level of local cooperation can be secured by a traditional civil defense agency, especially a federal government unit lacking local connections.

The Los Angeles Zone Organization Plan

We offer the following as suggestions of how a ZENN system could be instituted in the Los Angeles area. The Los Angeles ZENN board should comprise the following: the chief administrative officer or a county supervisor from Los Angeles, Orange, and San Diego Counties; a representative of Los Angeles City, and Long Beach, the four Orange County cities over 100,000 population, and one of San Diego City; an official of each of Ventura, San Bernardino, and Riverside Counties; and two representatives selected jointly by Santa Barbara, San Luis Obispo, Kern and Imperial Counties-- which are farthest from the probable attack target and are smallest in population and economic base. Finally, a state official, and one each from Office of Civil Defense and Office of Emergency Preparedness, should sit on the board, ex officio and nonvoting. The total membership, under this formula, will be 19 persons.

A technical advisory committee should be created, with representatives of the Office of Civil Defense, Office of Emergency Preparedness, California Office of Emergency Services, California Highway Patrol, and other federal and state agencies with key emergency functions; the Armed Services, all of which have major installations in the zone; the Southern California Association of Governments; vital quasi-public entities, such as port authorities and public utilities; and other agencies-- such as key industries, universities, and municipal planning departments-- at the discretion of the ZENN board.

Given the staff and other limitations of public agencies which might develop the necessary intergovernmental organizational and procedural arrangements for the zone, outside organizations should be retained to perform the technical planning, under the direction of a full time ZENN director hired by the ZENN board. The director will also maintain liaison with relevant governments at all levels, and supervise pre-crisis building activities. He will serve as executive secretary to the board, whose chairman should be elected by the members from among county or city representatives. The board, assisted by the Technical Advisory Committee, will approve all zone disaster plans and preparations.

The zone plan will provide for zonal authority structure, logistical arrangements, communications networks, and emergency operating centers (EOC's). As the Los Angeles zone is unusually large and complex, and contains several possible targets, two or more regional EOC's may be desirable; each would be activated in a large-scale attack, rather than be simply a backup resource for use only if the primary EOC were rendered inoperative.

EOC's should be located in major cities which are outside target areas but which have good transportation linkages with those areas and with other resource and population concentrations in the zone. To cut construction and equipment costs, existing city or county EOC's can be adapted for zonal purposes. Appropriate sites in the Los Angeles zone include, among others, Riverside, San Bernardino, Brawley-El Centro, Bakersfield, Santa Barbara and San Diego (although it may be targeted directly). Palm Springs is an attractive site since it is shielded from Los Angeles, 110 miles to the west, by mountains. However, destruction of the relay station on the San Jacinto Mountains would cripple its communications with other parts of the zone; also, the city is connected with urbanized areas of the zone by only one major highway.

San Francisco Civil Defense Zone

The San Francisco Office of Business Economics area contains 14 counties, which form a rectangle approximately 80 miles wide and 350 miles long (see Map 6). Highways 1 and 101 run north-south through the region, and several major east-west roads provide a link to Stockton, Sacramento and the other interior urban centers located along Highway 99 (which parallels Routes 1 and 101). The OBE area encompasses 5 million persons, 60 percent of whom live in the central five counties comprising the San Francisco Standard Metropolitan Statistical Area (Alameda, Contra Costa, Marin, San Francisco and San Mateo Counties).

Lake, San Benito and Mendocino are the smallest counties in the zone in population-- with a combined total of under 90,000 residents-- and they also lie farthest from the San Francisco metropolitan area. The authors have

Map 6

SAN FRANCISCO OBE AREA



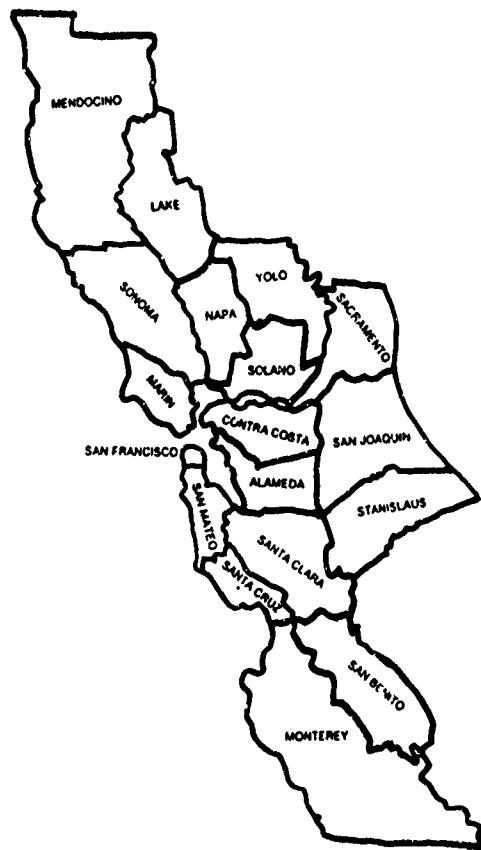
included these three counties in the proposed San Francisco civil defense zone, but their contribution to zonal civil defense preparedness may be marginal. More important, four counties not in the Office of Business Economics area have been added to the zone, because of their sizable populations and economic resources, and their proximity to likely targets in the region. These are Sacramento, San Joaquin, Stanislaus and Yolo Counties, which lie on the eastern boundary of the region and which together have 1.2 million residents. Thus, the proposed San Francisco civil defense zone comprises 18 counties, with a population 6.2 million persons (see Map 7).

State Civil Defense Arrangements

Civil defense arrangements for the San Francisco area parallel those for the Los Angeles area. The Region II office of the California Office of Emergency Services is responsible for 16 counties and approximately 130 incorporated cities (see Map 3). Included are all but four of the counties in the proposed civil defense zone. The regional office staff comprises three professionals and one secretary, who operate from a protected office in Oakland. Their emergency operating center is located in the California Veterans Administration home in Yountville, 50 miles to the north. The state disaster plan calls for approximately 34 emergency service personnel to assemble there in a major crisis. The regional manager questions the practicality of this procedure in a nuclear emergency. He did convene this staff in Yountville during the 1962 Cuban missile crisis. He notes, though, that local civil defense directors can decide whether or not to activate their local EOC's; in the 1962 incident, some did and others did not, resulting in a patchwork of readiness conditions. Of course, the Cuban missile

Map 7

PROPOSED SAN FRANCISCO ZONE



crisis did not pose any of the problems that would be visited on the area in the event of an actual attack.

The Office of Emergency Services Region II manager has named regional chiefs for police, fire, food, welfare, communications and other emergency services. For example, the San Francisco police chief also is regional law enforcement coordinator. In a war-related crisis, these officials would direct regional operations within their functional jurisdiction. The regional fire coordinator is elected by local and county fire chiefs; and the regional police head is selected in the same manner. For other functions, the OES regional manager appoints the person he thinks is most suitable. Each service chief is expected to name several alternates, though often only one is designated.

The OES regional manager could exercise command authority in a declared war emergency, as direct representative of the governor. In practical terms, however, the extremely limited political visibility and range of activities of the regional office in peacetime constrains its capacity to act in an emergency, since other operating agencies and government officials in the region are not accustomed to paying much attention to the regional OES staff. The OES staff suffers from the same kinds of role definition and other problems that are characteristic of most jurisdictions. These have been exacerbated by a gradual erosion of budget and staffing, reflecting diminishing public and governmental support. Thus, the present Region II staff of four persons is less than one-fourth of the complement the office once had. The Region V office, which encompasses four counties in the zone (Sacramento,

San Joaquin, Stanislaus and Yolo), comprises the manager and a secretary, down from a 1965 high of five professionals and three secretarial personnel.

Reduced staffing is just one aspect of the waning activity of the Office of Emergency Services regional office. Localities have been asked to prepare resource management plans, but there is no timetable for doing so. The Region II office does not even keep copies of the emergency plans developed by counties and municipalities within its jurisdiction; only the Sacramento headquarters maintains a complete file of these plans. And the OES regional EOC is not as well equipped as some of those established by its counties and cities. In effect this points up the fact, which we believe is true for most major population centers, that the fragmented and low key (or routine) nature of nuclear-oriented civil defense has not generated noteworthy building systems.

Local Civil Defense Arrangements

Alameda County. (Population 1,057,000.) Located directly across the bay from San Francisco and Army depots, Alameda County would be immediately affected by an attack on that city, even if the Oakland Navy facilities and adjacent concentrations of industries and population were not targeted directly. The Alameda Civil Defense and Disaster Organization has a staff of 10 and a budget of \$164,000. The county sheriff is ex officio civil defense director, but day-to-day operations are headed by the assistant director. This official is also chief of county field services, which encompass the county fire department, game warden, garbage dump inspectors and other agencies.

Alameda has had a civil defense agency continuously since 1917, and the present director has been in that office since 1938. The county EOC which cost more than \$850,000 is used daily as a substation of the Sheriff's Department. A community shelter study conducted in 1970 identified 2 million spaces county-wide, although nearly 15 percent of these are located in military installations which may be closed to the public in a crisis.

The Civil Defense and Disaster Organization serves 10 of the 13 cities in the county, under contract. The exceptions are Oakland, Livermore and Albany, which contain 40 percent of the total county population. Their nominal civil defense activities are directed respectively by the chief of police, city manager and fire chief. The county civil defense coordinator is assistant civil defense director of the 10 municipalities served by the county agency.

Contra Costa County. This county contains the Port Chicago U. S. Naval Magazine, all but one of the oil refineries in northern California, and more than 100 industrial plants using highly explosive, flammable, or toxic chemicals. The presence of these facilities, coupled with the proximity of the county to San Francisco, makes the county highly vulnerable to direct or indirect damage in an enemy on the Bay Area.

The Contra Costa disaster office is located in the county administrator's office, and its head technically is an assistant county administrator. He has a staff of 10 persons. In addition, several fire and police officers are assigned to civil defense programs. The county civil defense budget exceeds \$165,000. An EOC is located in the basement of the county office building, but it does not meet federal government protection standards.

The county and all 14 of its cities are signatories to the state Master Mutual Aid Agreement. The smaller communities tend to contract with larger cities or the county for police and fire services. For example, Clayton receives police protection from the city of Concord; and Lafayette contracts with the county sheriff for police services. Concord and Richmond are the two largest cities, with 84,000 and 78,000 residents respectively. Two personnel in the Concord Police Department are assigned part time to civil defense activities. Richmond eliminated its civil defense program, but reportedly is now rebuilding it. The remaining cities have designated their city managers to be director of civil defense, and have vested emergency functions in their offices or in the local police departments.

Lake County. This is a rural county whose population is 19,000; the largest community, Lakeport, has fewer than 3,000 residents. The civil defense agency consists of a coordinator and one secretary, both part time. The coordinator also is county veterans services officer, and has three other functions as well. The chairman of the county board of supervisors directs emergency operations in a crisis.

The county rarely experiences a serious disaster, and its civil defense budget is a token \$2,600. There is no county EOC. Nor has a formal community shelter program been drafted, as there are few shelter spaces. The county handles civil defense for Lakeport which has no separate emergency operations structure. Overall, the county could absorb a limited number of evacuees from target areas in the San Francisco zone, but it has little capacity to export resources or manpower to stricken jurisdictions.

Marin County. A nuclear attack on San Francisco might also target Hamilton Air Force Base in Marin County. It almost certainly would destroy the Golden Gate Bridge, thereby cutting off Marin County from the San Francisco Peninsula and perhaps inflict direct weapons effects on the southern end of Marin. Nevertheless, refugees from San Francisco and from damaged areas of Alameda and Contra Costa Counties could be evacuated to Marin by water, or by land around the northern end of San Pablo Bay, and the county's resources would be important to regional survival and recovery operations.

Marin residents generally are apathetic or hostile towards civil defense, and there is no county budget for civil defense. The veterans service officer doubles as civil defense director, and would be coordinator of emergency operations in a crisis. He devotes about one-tenth of his time to disaster preparedness activities, as does his secretary. The county civil defense plan, drafted in 1962, was rejected by the state as inadequate in 1969, and is being updated gradually.

Marin declined to participate in a multicounty community shelter planning study conducted in the Bay Area during the period 1968-1970. The civil defense director estimates that the office buildings and other suitable shelter facilities in the county could accommodate only 1 percent of the resident population, which totals 200,000 persons. There are few shelters except for home basements, which most houses lack.

None of the 12 incorporated municipalities in the county has a civil defense agency; most have designated the mayor or city manager director of civil defense, with the local fire or police chief acting as assistant director. Only San Rafael, the largest city (population 38,000) has an approved

civil defense plan. An integrated cities-county civil defense arrangement formerly was in effect, but this was eliminated about 1969. The municipalities presently are linked only by fire and law enforcement mutual aid agreements.

Mendocino County. Located about 80 miles north of the Golden Gate Bridge, this rural county (population 51,000) is connected to San Francisco by two major roads (Highways 1 and 101). There are four municipalities in the county, of which the county seat (Ukiah, population 10,000) is the largest. In each city, the city manager is civil defense director, and there is no separate disaster office. The county civil defense and disaster council comprises the directors of agencies with emergency functions. Its chairman is head of the board of supervisors. The county administrative officer is the immediate chief of operations in an emergency; his assistant handles this function on a day-to-day basis, although in fact the county's nominal civil defense activities have been delegated to a secretary.

Mendocino does not participate in the Office of Civil Defense Personnel and Administration program, and its civil defense budget totals \$8,500. There is a communications center in the basement of the county courthouse, but it is not an Office of Civil Defense approved EOC. Occasional floods during winter are the only serious emergencies the county has experienced, and the last severe flood occurred in January 1965. The municipalities are linked by fire and police mutual aid agreements, but there is little concern locally with nuclear preparedness.

Monterey County. (Population 249,000.) The county civil defense budget totals \$5,500, and there is no civil defense staff per se, no community

shelter program, and essentially no activity in this area. The county administrative officer directs county agencies in an emergency. There is an Office of Civil Defense certified county EOC in Salinas, the largest city (population 58,400). None of the 10 cities in the county has a separate civil defense office, with the possible exception of Salinas. In each case, the mayor or city administrator heads crisis operations.

Monterey could host a substantial number of nuclear attack refugees from the San Francisco or Los Angeles regions. The county is important to zonal defense also as a source of many vegetables and other basic food-stuffs.

Napa County. The Napa sheriff is county civil defense director in a crisis, assisted by the county administrative officer. A part time operations officer-- who also is county purchasing agent-- handles routine civil defense matters, with a budget of \$25,000 (no federal Personnel and Administration funds are received). There is no county EOC, although one will be incorporated into a planned government center. Some fallout shelter spaces have been designated, but this task has not been completed.

Nearly one-half of the county's 76,000 residents live in Napa, the county seat. However, neither it nor the other three municipalities have civil defense agencies or staffs. Yountville (population 2,200) houses the EOC for the state Office of Emergency Services Region II, but the Napa civil defense coordinator has little contact with OES staff despite the presence of this facility.

Sacramento County. With a large economic base, more than 60,000 residents, and an interstate highway linking Sacramento City (population

258,000) to San Francisco (85 miles away), this county would be an important component in San Francisco zonal survival and recovery efforts. In fact, the presence of McClellan and Mather Air Force Bases might cause the county itself to be targeted. The Sacramento Emergency Planning Office is responsible for the county and all four of its incorporated municipalities. It is situated organizationally under the Sacramento city manager, who heads countywide disaster operations.

The Emergency Planning Office has three staff members, including a secretary. Three other positions were eliminated recently, which is reflected in a reduction of the civil defense budget from \$130,000 (fiscal year 1971) to \$70,000 (fiscal year 1972). An emergency planning council comprises a county supervisor, the county administrator, the Sacramento city manager and a member of the city council, and the mayors and city managers of the other three cities in the county.

The Sacramento City Hall contains an EOC, though it does not meet federal protection standards. And Sacramento was among the first counties in the state to complete a community shelter plan, through which all available shelter spaces were identified.

San Benito County. Smallest in population (18,000) of the 18 counties in the zone, San Benito is 80 miles south of San Francisco. Hollister (population 7,700) the larger of its two municipalities, lies 10 miles east of Route 101, the major north-south highway. Its small population, lack of resources, and relative isolation lead to the conclusion that the county would be only useful in the zone defense network. It is mentioned here

largely because its northern tip must be crossed en route to or from Monterey County.

The San Benito sheriff acts as civil defense director in a crisis but not otherwise. There is one civil defense official who bears several additional titles (among them deputy sheriff, coroner's investigator, and communications officer). An EOC in the county jail basement has a fallout protection rating of 40 (short of the 100PF Office of Civil Defense requires for approval); a new facility is scheduled in the next two years. A recently completed community shelter plan identified 20,429 spaces, but 20,000 of these are in a mine tunnel in a remote community 65 miles south of Hollister.

San Francisco. The San Francisco Disaster Corps is the civil defense agency for the city and county of San Francisco.<sup>1</sup> The mayor heads the Disaster Corps. In an emergency, he has overall control; the chief administrative officer and the president of the board of city supervisors are second and third in command respectively. The full time civil defense coordinator has no formal powers in a crisis, but serves as the chief of staff to the mayor. The Disaster Corps has nine staff members. In addition, three fire and three police officials are assigned to the corps, and one-half of their salaries is reimbursed by the federal Office of Civil Defense under the Personnel and Administration program.

San Francisco participated in the four-county Bay Area community shelter plan conducted in 1968-1970 by the Association of Bay Area Governments. Sufficient shelter spaces have been located to accommodate the peak

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1. There is a combined city-county government.

daytime population of 1.2 million persons, with 3.5 million surplus spaces. Some buildings have been licensed for their occupants only, in which cases the facility is not marked publicly as a shelter. The city has found many owners willing to accept this arrangement who did not want their buildings identified publicly.

The city has a mobile communications unit, based in a fire station, which is equipped to monitor most city department frequencies. An alternate facility houses fire and police radio networks. A "hot line" linking Bay Area radio and TV stations is being installed and paid for by 20-odd member stations. These systems notwithstanding, the city lacks an EOC which meets federal standards.

A study was initiated recently by Stanford Research Institute to apply to San Francisco a new concept known as the Nuclear Emergency Operating Plan (NEOP). In general, this entails dividing a major city into a number of zones 25 square miles in size. However, San Francisco totals 49 square miles -- which would suggest only two zones-- so that the city's 10 fire battalion districts are used as the basic zones. NEOP emphasizes self-help by a stricken city during the period after an attack but before survival and recovery resources can be imported from surrounding areas. The zonal concept with which IPA is concerned in this report presumes that the target city will be damaged to the extent that it cannot help itself significantly. While the two approaches differ in their underlying assumptions about vulnerability in an attack, the one can be designed as complementary to the other.

The San Francisco civil defense coordinator previously headed the Emergency Planning and Operations Division of the state Office of Emergency

Services, and before that he was the state Region I manager. When he assumed his present position in March 1969, the board of supervisors had voted to fund the Disaster Corps only through December of that year, at which time its functions would be assigned to the fire and police departments (which would finance them out of their own budgets). The new civil defense director undertook to mobilize support from various federal, state and local officials, and advertised his ability to acquire valuable equipment for city agencies under the Office of Civil Defense surplus property program. During 1970, equipment worth more than \$175,000 was purchased for less than \$15,000, a record which substantially bolstered the stature of the city Disaster Corps in the city government. Office of Civil Defense in the past defined very narrowly the purposes to which such property could be used, but controls are no longer imposed. The coordinator stresses the nonnuclear aspects of his job, and claims to receive strong support from the mayor of San Francisco.

San Joaquin County. Stockton (population 103,000), the largest city in the county, is located 70 miles east of Oakland, and is reached via an interstate highway. The San Joaquin Office of Emergency Services, which has a budget of \$45,000, is headed by the chairman of the county board of supervisors. The chief administrative officer is its deputy director. A coordinator and one secretary handle routine civil defense matters for the county; they also perform much of the disaster-related administrative paperwork for the six incorporated cities in the county, none of which has a separate civil defense staff.

The county has an approved EOC at the courthouse in Stockton, and all available fallout shelter facilities have been surveyed. The county's

disaster experience to date has been limited for the most part to severe floods, the last of which struck in 1969.

San Mateo County. This county-- located to the south of San Francisco-- represents the only land avenue to that city, and it contains the San Francisco International Airport. San Mateo, therefore, is highly vulnerable to enemy attack. In addition, the San Andreas fault runs through the county; the earth moves about one inch per year in a southerly direction, and many noticeable tremors occur periodically.

The San Mateo Operational Area Civil Defense and Disaster Organization coordinates the disaster activities of the county and all 18 of its incorporated cities. It is directed by an area council composed of one representative from the county (typically a member of the board of supervisors) and one from each of the municipalities (usually the mayor or a city council member).

The Disaster Organization has seven full time staff members who are county employees. Two additional personnel are paid by the civil defense agency, though they are in the county Communications Division. The civil defense budget averages \$130,000 a year: the county appropriates the total requested by the area council, and the cities subsequently reimburse the county for their share of expenditures. The county disaster agency is the surplus property agent for all 18 cities. It maintains an approved EOC, and has completed a countywide community shelter plan.

Santa Clara County. The second most populous county in the zone, Santa Clara contains 15 incorporated cities-- of which San Jose, with 437,000 residents, is the largest. The county civil defense coordinator reports to

the county executive. In an emergency, the coordinator functions as the executive officer's aide de camp, rather than being directly in the chain of command.

The civil defense staff consists of four persons full time and one person part time. The agency budget is \$65,000. The county performs civil defense services under contract for several cities, including Cupertino, Gilroy, Los Gatos and Milpitas (total population 80,000). There is no county EOC, although San Jose has such a facility.

In 1966, Office of Civil Defense invited Santa Clara County to conduct a community shelter plan, with 100 percent federal funding. The project had to be undertaken countywide. However, San Jose declined to participate, as it had been involved in a pilot shelter survey. Two years later, the county was asked to join in a Bay Area community shelter plan, but several county supervisors objected to the project and to the fact that it was to be coordinated by ABAG. The supervisors ultimately directed the county Planning Department to conduct a shelter study, but by that time federal funds no longer were available. Overall, about 550,000 shelter spaces have been identified of which one-half have been marked and one-quarter stocked.

Santa Cruz County. The Santa Cruz Disaster Office is an independent agency under the county administrative officer, who is civil defense director. The civil defense coordinator, who with a secretary comprises the Disaster Office, serves as the county administrative officer's deputy in an emergency. A county disaster council composed of department chiefs is headed by the chairman of the county board of supervisors.

The Disaster Office has a \$43,000 annual budget, and has a large EOC occupying the entire basement of the new county government center. A county community shelter plan has been completed. The county handles civil defense planning for three of its four cities-- Santa Cruz, Scotts Valley, and Capitola. The fourth, Watsonville (population 14,000) has assigned this function to its finance officer who is deputy to the city manager in a disaster.

Solano County. A predominantly agricultural area which also is the home of Travis Air Force Base, Solano County is located within 30 miles of San Francisco. The county fire warden doubles as civil defense director. There is no separate civil defense staff or budget, nor is there an EOC (though the Fire Department contains a communications center). None of the seven incorporated municipalities has a civil defense agency, though all are linked by fire and police mutual aid agreements. No fallout shelter planning has been done. In short, virtually no attention is paid to nuclear preparedness by the county or any locality. In an emergency, the fire warden coordinates operations under the direction of the chief administrative officer who reports to the chairman of the county board of supervisors.

Sonoma County. Sonoma extends 60 miles north from San Pablo Bay, although the bulk of its 200,000 residents live in the southern half of the county. Santa Rosa, the county seat, is the largest city (population 48,500), and also hosts the Region VII headquarters of the Office of Civil Defense and the Office of Emergency Preparedness. The county has a communications center but no EOC, nor has it undertaken a community shelter plan.

The Sonoma County Office of Emergency Services, staffed by one professional and a clerk, is located in the office of the chief administrative officer who is the civil defense director. Its budget is \$25,000. None of the eight cities in the county have civil defense staffs, although four of them-- Petaluma, Healdsburg, Rohnert Park, and Sonoma-- are reported to have identifiable civil defense programs.

Stanislaus County. Modesto (population 60,300), the seat and largest city of Stanislaus County, is 80 miles east of Oakland, separated by the northern tip of the Diablo Range. One of the two major aqueducts feeding the East Bay cities from the Sierra Nevadas runs past Modesto; the other crosses San Joaquin and Contra Costa Counties to the north. County civil defense functions are performed by one professional and a secretary in the Civil Defense and Safety Section of the Office of County Administrator. Their budget is \$24,000.

The county has marked 30,000 shelter spaces, which represent the total supply excepting several large facilities whose owners refuse to permit marking and stocking. The courthouse contains an EOC whose equipment presently is being upgraded. The eight cities in the county do not have their own civil defense agencies; most have designated their fire chiefs the local civil defense coordinator, although Modesto has named its deputy city manager civil defense director. The county assists all its municipalities in disaster preparedness activities. However, local interest in nuclear contingencies is described by a county official as "something less than zero," and the only concern is for occasional flooding of the several rivers that cut across the county.

Yolo County. Yolo County is a farming area in the Sacramento Valley, 75 miles from San Francisco. The Yolo County Office of Emergency Services is housed in the Communications Department. It consists of a part time director and one secretary, and operates with a budget of \$23,000. An approved EOC is located in the communications building. A full community shelter plan has not been undertaken, but more than 25,000 shelter spaces have been marked (and 9,000 stocked). The three incorporated municipalities in the county-- which together contain one-half of the county's 91,000 residents-- do not have local civil defense staffs or programs.

Summary of Local Civil Defense Capabilities

Comparative data for the 18 counties in the San Francisco zone-- including population, number of cities, county civil defense staffs and budgets (and participation in the Office of Civil Defense Personnel and Administration program), emergency operating centers, and status of community shelter program-- is presented in Chart 3. Three-fourths of the 6.2 million residents of the zone live in six counties in its central core-- San Francisco, San Mateo, Alameda, Contra Costa, and Sacramento. Every county but Marin, Monterey and Solano has at least a nominal civil defense staff and program, but the six most populous counties account for 43 of the 53 full time civil defense personnel in the zone, and for more than 80 percent of the \$1.1 million spent by the county civil defense agencies in fiscal year 1971.

Only 10 counties have full time civil defense directors, but these jurisdictions encompass more than 85 percent of the region's population. Of the seven cities in the zone with over 100,000 population, only three-- San

Chart 3

SAN FRANCISCO CIVIL DEFENSE ZONE: COMPARATIVE DATA BY COUNTY<sup>a</sup>

County	1970 Population	Number of Incorporated Cities	Co. Civil Defense Staff	P & A		P & A Funds	Civil Defense Budget	County EOC (100 PF) <sup>c</sup>	Community Shelter Plan
				Part Time	Full Time				
Alameda	1,059,100	13	10	1	8	\$ 74,700	\$ 164,000	Yes	Yes
Contra Costa	551,500	14	10	15	100,800	167,000	2,600	No	Yes
Lake	19,000	1	2 p/t	--	--	None	2,600	No	None
Marin	204,000	12	2 p/t	--	--	8,500	8,500	No	Partial
Mendocino	50,600	4	1	--	--	5,500	5,500	Yes	None
Monterey	248,800	10	None	--	--	25,500	25,500	No	None
Napa	76,900	4	2 p/t	--	--	44,000	70,000	No	Yes
Sacramento	636,100	4	3	6	3,200	6,500	6,500	No	Yes
San Benito	18,000	2	1 p/t	1	--	118,000	279,900	No	Yes
San Francisco	704,200	1	9	15	13,900	45,000	45,000	Yes	Yes
San Joaquin	284,500	6	2	2	9	65,000	130,000	Yes	Yes
San Mateo	551,000	18	7	1	4	32,200	65,000	No	None
Santa Clara	1,057,000	16	4-1/2	1	4	12,100	43,000	Yes	Yes
Santa Cruz	120,900	4	2	2	2	None	None	No	None
Solano	164,500	7	1 p/t	--	2	8,700	25,000	No	None
Sonoma	199,400	8	2	1	--	10,500	24,000	Yes	Yes
Stanislaus	191,700	8	2	2	1	5,900	23,000	Yes	None
Yolo	90,800	3	1-1/2	2	1				
<b>Totals</b>	<b>6,226,000</b>	<b>135</b>	<b>53 f/t</b>	<b>9</b>	<b>64</b>	<b>\$489,100</b>	<b>\$1,144,500</b>		

a. Data is for fiscal year 1971; population figures are from 1970 Census.

b. May differ from "Co. Civil Defense Staff" as civil defense staff may not all be covered by Personnel and Administration, or P & A may cover persons not in civil defense agency.

OES Region II: Alameda, Contra Costa, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma

OES Region III/IV: Sacramento, San Joaquin, Stanislaus and Yolo

OES Regional Office Staff: Region II-- 4 full time; Region III/IV-- 2 full time.

c. 1 PF-- Protection Factor (i.e., only 1/100 of fallout seeps into shelter).

Francisco, Sacramento, and San Jose-- have significant civil defense agencies. The trend is towards decreasing county and local expenditures for civil defense. Through attrition and cuts, staffing areawide is down considerably from the level five or 10 years ago. A case in point is the halving this year of the Sacramento civil defense office, from six to three personnel. In general also, the level of civil defense activity is inversely related to a county's distance from San Francisco.

Major disasters in the San Francisco region are relatively rare. Floods are the most common emergency, but the last devastating flood occurred in 1967. The recent serious crises have been student disturbances at San Francisco State College and the University of California at Berkeley, and the large oil spill in the Bay in January 1971. Interlocal mutual aid was used effectively in controlling the student unrest. However, the cost to jurisdictions sending police personnel was considerable, particularly in the protracted San Francisco State episode. The earth tremors, fires, industrial accidents and civil disorders that occur occasionally seldom match the severity of many recent disasters in the southern part of the state. The counties of the San Francisco zone lack recent experience comparable, for example, to the large-scale fires that regularly test the emergency response capabilities of Los Angeles region governments.

#### Interlocal Agreements and Organizations

Interlocal cooperation in emergencies generally takes place under mutual aid agreements between the respective governments, or on an ad hoc, informal basis. All counties in California are signatories to the state Master Mutual Aid Agreement, as are many localities (including those that

participate in the federal Personnel and Administration program). Most municipalities have fire and law enforcement mutual aid agreements with neighboring communities. By declaring a state of emergency in a given area, the governor can mandate the rendering of mutual aid, but legal coercion has never been necessary.

Regional organizations concerned with disaster preparedness include the Office of Civil Defense Region VII office, the Office of Emergency Services (Region II), the northern chapter of the California Civil Defense and Disaster Association, and the Association of Bay Area Governments. In addition, the San Francisco Federal Executive Board, whose meetings Office of Civil Defense and Office of Emergency Preparedness personnel attend-- attempts to coordinate federally aided urban programs in the Bay Area. For two years the Office of Civil Defense regional director chaired its committee on intergovernmental relations. However, the board meets infrequently (quarterly, on average), has no supporting staff structure, and exercises no control over the internal workings of member agencies.

The Office of Civil Defense Region VII office is located in Santa Rosa (Sonoma County), 60 miles north of San Francisco on Highway 101. It has approximately 40 personnel, including five field officers assigned to California. Major functions include promotion and liaison, and review of state and local program papers. California has begun to encourage counties to submit program papers on behalf of their incorporated municipalities. If adopted widely, this practice would result in far fewer papers being forwarded to the Region VII office; at present, however, the Office of Civil Defense staff continues to receive 200-250 sets of papers each year.

Office of Civil Defense recently mandated that all state and local emergency operating plans be updated every two years. No federal funds are available specifically for this purpose, although the work will be performed principally by personnel covered under the Personnel and Administration program, and matching funds are offered for publishing and distributing the updated plans. States and localities which do not revise their plans biannually face loss of Office of Civil Defense assistance.

Office of Civil Defense regional personnel were not involved in combating the January 1971 San Francisco Bay oil spill, and in general they assist in natural disasters only at the request of the Office of Emergency Preparedness regional office (which is also housed in Santa Rosa). The OCD office is far better positioned geographically to contribute to San Francisco than to Los Angeles zone civil defense systems, and the Santa Rosa headquarters, in fact, could be adapted to serve as the principal or alternate emergency operating center for the zone. However, the constraints cited earlier on regional office activities in the Los Angeles zone-- such as limited staff capabilities and an overly large areal jurisdiction-- also affect the staff's potential role in the San Francisco zone.

The northern chapter of the California Civil Defense and Disaster Association, with 80-odd members, is smaller than its southern California counterpart. It serves a similar function as a trade association and a forum through which area civil defense officials exchange information and attack common problems. The San Francisco city-county civil defense co-ordinator currently is its vice chairman. The role of this instrumentality

in zonal civil defense activities is constrained severely by its spotty membership and lack of staff resources and legal powers.

The Association of Bay Area Governments is a regional planning agency established in 1961 under the California Joint Exercise of Powers Act. Its present membership of eight counties and 84 municipalities represents more than 99 percent of the Bay Area population. Solano, the ninth county in the region ABAG defines as the "Bay Area," does not belong to the organization, although its major cities are members.

ABAG's involvement in civil defense matters to date consists of directing a four-county community shelter plan which was conducted over a 27-month period between 1968 and 1970. The technical planning of this federally funded project was performed by a private consulting firm, so that ABAG served chiefly as project manager and coordinator. A community shelter plan steering committee was created to provide liaison and make recommendations pertaining to the program. The recommendations were reviewed by advisory committees formed in each participating county; as it happened, the chairmen of the four county committees were all members of ABAG's own steering committee. The core voting members of the steering committee were a civil defense and a planning department official from each of the four counties and from the city of Oakland. Ex officio members included two representatives of the technical consultant (Wilbur Smith and Associates), and one each of the U. S. Army Corps of Engineers, the California Office of Emergency Services, Office of Civil Defense Region VII, the Bay Area Rapid Transit District, and the California Highway Patrol.

The steering committee was chaired by the full time coordinator hired by ALAG for that purpose (this official came to ABAG from the California Office of Emergency Services where he had been chief community shelter planner for the previous two years). None of the other approximately 16 professionals on the ABAG staff was involved in the study. However, ABAG subsequently proposed that it undertake public information and other second stage activities of the community shelter plan; if retained, the organization presumably would expand its commitment of staff resources.

ABAG's value to zonal civil defense activities is its close ties with area governments and its in-house expertise in dealing with problems of metropolitan dimension. Several negative factors must be considered, however. First, ABAG's membership encompasses a geographical area far smaller than the San Francisco zone, so that many counties and localities in the zone have no working relationship with the regional instrumentality. This fact has little bearing on planning activities, but it constrains ABAG's capacity to stimulate, direct, or coordinate pre-crisis preparedness operations.

Second, ABAG is not universally well regarded by Bay Area jurisdictions. Thus, it was unable-- or did not attempt-- to persuade more than four counties to participate in the 1968-1970 Bay Area community shelter plan. Federal CSP funds were limited, but lack of interest was the principal reason more counties did not join in this planning effort. In fact, as noted earlier, Santa Clara boycotted the project in part because of hostility towards ABAG. Finally, ABAG's professional expertise is valuable only to the extent it is applied to civil defense matters. For its role in the

community shelter plan, ABAG had to hire an outside expert, and then it subcontracted the technical planning to Wilbur Smith and Associates.

The San Francisco Zone Organization and Plan

The policy-making Zonal Emergency Nuclear Network (ZENN) board established for San Francisco should have the following composition: one representative each from Alameda, Contra Costa, Sacramento, San Francisco, San Mateo and Santa Clara Counties, which comprise the densely populated core of the zone; two members from the seven counties which form the northern third of the region-- Lake, Marin, Mendocino, Napa, Solano, Sonoma and Yolo; two members designated by the five counties south of the San Francisco-Oakland urbanized area-- Monterey, San Benito, San Joaquin, Santa Cruz and Stanislaus; two members appointed by the six cities of over 100,000 population (excluding San Francisco, which is represented as a county)-- Berkeley, Freemont, Oakland, Sacramento, San Jose and Stockton; a state official named by the governor (presumably, but not necessarily, a ranking official of the Office of Emergency Services); and one representative each from the Office of Civil Defense and the Office of Emergency Preparedness. Using this formula, the ZENN board membership would total 15 persons.

A technical advisory committee should be created to assist the ZENN board and the agencies which prepare zonal emergency plans and coordinate pre-crisis operations. Members should include representatives of federal and state agencies with vital emergency functions; the Armed Forces; and the Association of Bay Area Governments, the Bay Area Rapid Transit District, the San Francisco and Oakland Port Authorities, major public utilities, and other important regional instrumentalities or special districts. The ZENN board

may wish to appoint additional members, from area universities or other organizations, who possess a particular expertise in emergency planning and resource management.

Technical planning for the San Francisco zone might best be performed by a private consultant, under the direction of the zone coordinator, ZENN board, and technical advisory committee. ABAG does not appear to be the optimal planning agent, in view of its small areal scope and its limited staff expertise in this field. Also, its relations with area governments are not uniformly good, which could jeopardize efforts to achieve the active participation of all governments in the region.

The Office of Emergency Services Region II office is responsible for all but four of the 18 counties in the zone; but its three professional staff members could not perform the necessary zonal planning in addition to their normal functions. Furthermore, the use of a state agency as a supporting arm of the ZENN board-- most of whose members are county and municipal officials-- poses political, if not legal problems.

Several counties in the San Francisco zone-- notably Alameda, Contra Costa, San Francisco and San Mateo-- have sizable civil defense staffs (see Chart 3), but it is doubtful whether any of these can be diverted from their customary tasks to conduct zonal planning. To hire new personnel specifically for this purpose is complicated by civil service and merit system procedures. Also, a government agency is unlikely to want to hire new staff for a particular project if there is no certainty that the financial support-- in this instance from Office of Civil Defense-- will continue after the initial planning phase is completed.